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Contents

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Distributed monthly to finishing room and paint shop foremen, production superintendents, chemists, purchasing agents and company executives of metal-working, woodworking and miscellaneous industrial plants where production cleaning and finishing are major operations in parts and products manufacture.

★

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24 TWENTY-FOURTH YEAR OF PUBLICATION

Sales forecasting, the scientific approach to the age-old problems of what to make and how much, is now an essential part of business management, says C. W. Moore, director of market research for SKF Industries.

"I can think of no major business decision that is not based, in part, on an estimate of future sales," he told 2000 of the nation's industrial accountants attending the annual cost conference of the National Association of Cost Accountants at the Waldorf Astoria Hotel (June 23).

"So long as it adheres to scientific standards of factual observation, accurate measurement, and unbiased reporting, its usefulness to top management will continue to grow."

Present-day sales forecasting, he continued, has been largely delegated to market research specialists because few executives have time for "sober" analysis of the current business situation. He attributed this to the requirements of the "petty detail of business routine, the present running sequence of minor emergencies, and the rat-race of competitive sales and production."

* * *

Census of Manufacturers. Direct appeal to manufacturers to expedite their 1947 Census of Manufactures report to the Bureau of the Census is made in a statement by Census Director J. C. Capt. He urges manufacturers to make sure all inquiries in the Census questionnaire are answered accurately to eliminate the necessity for expensive and time-consuming follow-up correspondence. To date, the Census Bureau has received reports from about 150,000 of the approximately 250,000 establishments to which questionnaires were mailed. About half of the reports received have been found incomplete and must be returned for additional or corrected information.

Manufacturing establishments that have not received questionnaires are requested to write at once to the Bureau of the Census, Industry Division, Washington 25, D. C., giving their firm names, addresses, and descriptions of their products. The latter information is needed to determine which of some 200 different reporting forms should be sent them.

* * *

Non-Breakable Jars. Lighter than glass by 75%, non-breakable vials, cosmetic jars and a wide variety of other pharmaceutical and food-type containers are now being mass-produced to broaden the base for potential sales of products that were not previously possible to package in this manner. Products for which this type of packaging is particularly adapted are those having wet, oily, acidic contents, as well as dry products that are sensitive to moisture.

The new containers are made of Bakelite polyethylene that combines the advantages of lightness in weight, no breakage, new design and color

LET'S "FINISH" in '48 . . . . . .

Dr. O'Finish Prescribes

Rx

1. Dolan's FASTAIN
2. Dolan's FULL-FILL
3. Dolan's WOOD-SEAL
4. Dolan's SEAL LACQUER

Directions—Use above daily, in order prescribed, to obtain complete relief promptly from all FINISHING ailments.

V. J. DOLAN & COMPANY, Inc.

Manufacturers of "Unquestionable Quality" INDUSTRIAL FINISHES

Lacquers . Sealers . Synthetics . Stains . Fillers . Bleaches

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STRATHMORE PRODUCTS

SPECIALISTS
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INDUSTRIAL
FINISHES

MANUFACTURING
a COMPLETE
LINE of INDUSTRIAL
and Automotive Finishes
for many of the
Country's finest firms

LET US IMPROVE
Your Product's Finish

Send us your most difficult problem. Our laboratory staff is second to none.

STRATHMORE PRODUCTS

Strathmore
PRODUCTS INC.
4970 W. Fayette St.
Syracuse 4, New York

effects, and durability plus the qualities of being odorless, tasteless and inert. Bakelite polyethylene is very resistant to strong acids, so much so that containers made of it are resistant to highly corrosive hydrofluoric acid.

* * *

Ideas that Pay. A total of 13,489 suggestions from employees were received during the two-months' "Wipe Out Waste" campaign recently concluded by The B. F. Goodrich Co. among all units of its nation-wide organization. Three prizes of $500 United States savings bonds, with federal withholding and social security taxes also paid, were awarded to individuals whose suggestions during the campaign period were judged most valuable.

* * *

More Silver. The many and varied industrial uses of silver during the past year have been at a level more than three times higher than the average annual consumption during the pre-war decade.

American industries, last year, used 100,000,000 Troy ounces and it is estimated that consumption will be equally high during 1948. Before the war an annual average of around 30,000,000-oz. went into varied manufacturing processes. As industrial use here increased, the demand for silver for subsidiary coinage has decreased or ceased in many countries.

* * *

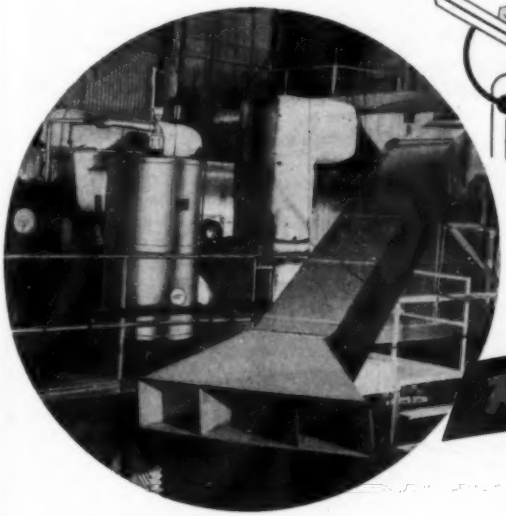
Visitor's Day at Plant. New and improved technique has been discovered in connection with having the public visit local factories. Highlights are as follows:

Only small parties should be handled on a tour. First they assemble in the plant conference room, where a representative talks briefly on the purpose of the visit.

For inspection of the plant itself, visitors are divided into groups of not

PROBLEM...

to design and install an efficient drier without utilizing floor space!



RESULT

ANSWER...

Ferro engineers were put on the job . . . Working as one part of a team, Ferro engineers designed a 1,000,000 BTU direct gas-fired heater requiring only *one cent or less* for fuel* to process each unit range body in ground coat . . . Other Ferro engineers installed an efficient monorail drier (consisting of housing, fans, controls, etc.) expertly positioned in unused overhead space — leaving previously occupied floor area for other use.

Satisfied Customer: **TAPPAN STOVE COMPANY**
Mansfield, Ohio

* 1000 BTU fuel • 1000 cubic feet per hour • 50c per 1000 cubic feet

FERRO
enamel corporation
4150 East 56th Street
Cleveland 5, Ohio

heated

LACQUER

saves materials, time and labor

One coat of SIMAX lacquer, formulated specifically for heating, does the work of two coats of cold lacquer, saving material, time and labor.

SIMAX lacquer has body equal to varnish, and produces an exceptionally tough film with great durability. When heated it sprays on easily, has greater flow and better flow.

SIMAX

THE FINISH THAT LASTS

Originators of "hot" lacquers, Wabash Products Company now offers improved materials formulated to meet today's requirements. Let us demonstrate!

WABASH PRODUCTS COMPANY

Lacquers • Enamels • Sealers • Stains
Fillers • Varnishes • Thinners
Synthetics • Wrinkles

16th and Hulman Streets
Terre Haute, Indiana

more than five persons, each with a thoroughly trained escort. They see the factory in full routine production, without holiday dress. Souvenirs of the trip—samples of work in production—are distributed to visitors.

After a walk through the plant, visitors reassemble in the conference room for luncheon or refreshments.

Up to this point guests have seen how goods are produced; have looked at individual machines that cost a lot of money. But now the story is brought down to pennies—not just figures, but the actual coppers, by breaking down the company's income dollar.

A silver dollar is inserted in the top of a sort of Rube Goldberg machine, causing a panel labeled "Company Income" to light up. Metal tubes run from this to various other windows marked Material, Wear and Tear, Taxes, Operating Expenses, Employees Wages, Officers Salaries, Stockholders Dividends, and Reserve for Growth. These panels are lighted in succession, and simultaneously the tube under each panel clinks out pennies in proportion to the amount of money spent in the particular category. This really makes a deep and lasting impression on everyone who sees it. Visitors remember the essential facts remarkably well.

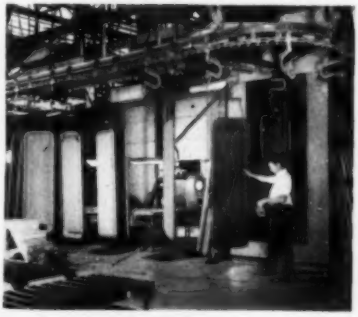
* * *

"Skin" for Plywood. Paper-plastic surfacing of plywood brings plywood three major improvements—increased tensile and flexural strengths, a lower rate of moisture absorption, and an excellent surface for subsequent painting and finishing. In addition, it minimizes checking difficulties, resists temperature extremes, weather, abrasion, and is non-splintering.

Tough and durable, this new important structural material consists of special paper stocks impregnated

(Continued on page 108)

"Made to order" for LARGE PRODUCTION OPERATIONS



• Here an operator checks paint thickness on parts as they emerge from one of the LANLY drying ovens.

"Made to order", in that we will welcome the opportunity to discuss your oven requirements for any process and design and build one or more units as needed for maximum efficiency.

Illustrated above is a LANLY OVEN installation for a large production operation.

The parts are carried on an overhead conveyor and move continuously through the various equipment used in processing.

The two LANLY three-pass ovens dry the prime and finish coats on the parts after they leave the spray booths.

These ovens are gas heated by standard LANLY convection heaters.

For additional information, write to LANLY. We will gladly forward you copy of our latest catalog.

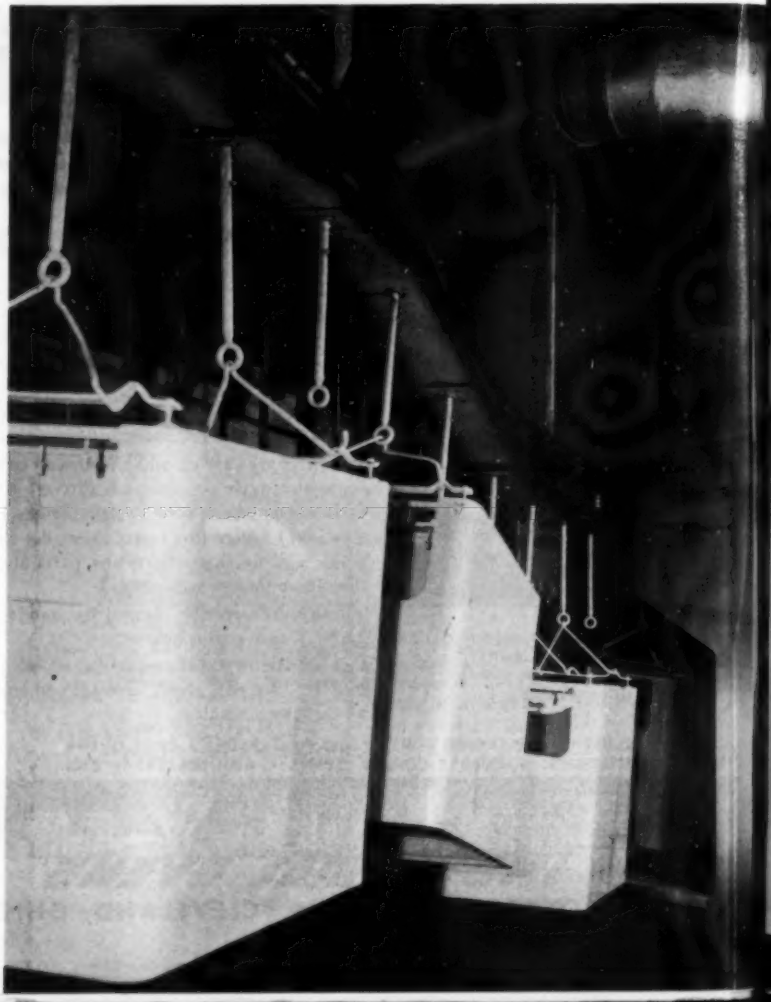
CONSULT US REGARDING • HEAT TREATING OVENS • CORE OVENS
PAINT OVENS • RUBBER CURING OVENS • AIR HEATERS • ETC.

THE LANLY CO.
INDUSTRIAL OVENS

760 PROSPECT AVENUE • CLEVELAND, OHIO

Finishing Home

Gleaming white cabinets coming from the exit end of the bake oven. They will cool off as they travel to the transfer where they are masked and the toe stripe applied.



Freezer Cabinets

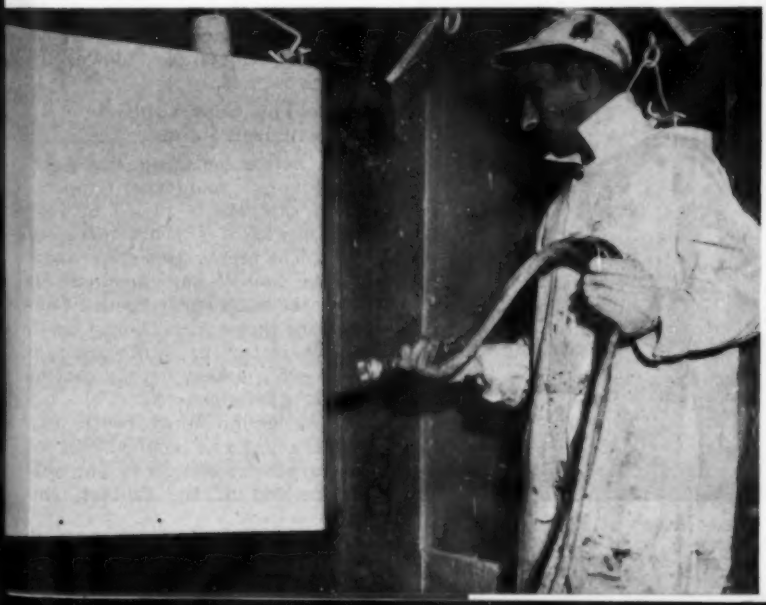
Manager of Quality Control Laboratory at Nash-Kelvinator tells how Kelvinator home freezers and ice cream cabinets are finished.

By J. R. STREETER

SOMETIMES the obvious and simple method is the best. It has proved to be the case in our finishing system. After all, there are only four basic steps in metal finishing: 1) Metal cleaning and surface preparation; 2) Application of finishing materials; 3) Curing the finish, and 4) Applying decorations. How easily, quickly and thoroughly these steps are accomplished determines the efficiency of the system. It is true we are aided by modern equipment and synthetic materials in meeting the rigid test requirements set forth in our specifications.

Home freezer and ice-cream cabinet shells are delivered to the finishing room where they are sus-

Spraying synthetic enamel on cabinets in a water wash booth, the third spray station.



pended by hangers attached to an overhead monorail conveyor. This conveyor is driven through a variable-speed drive, and operates at a speed of 7-ft. per minute, with hangers spaced on 28-in. centers. The conveyor is equipped with a traveling metal shield which protects the white finish from any oil or grease that might drip off the overhead chain.

Cabinets enter the 5-stage washer where they are spray cleaned and Bonderized. The washer is equipped with spray nozzles on four sides so that all metal surfaces are thoroughly flooded with the various solutions and rinses.

Home freezer cabinets entering the spray cleaning and Bonderite unit. Notice metal shields which protect cabinets from any oil or dirt that might drip off the conveyor.

In the first stage an emulsion cleaner with alkali and mild phosphoric acid is sprayed at 160° F. Following this are two hot water rinses, the first at 140° F., the second at 130° F. It should be noted that the temperature is reduced from 160° F. to 130° F., so that when the cabinets enter the third stage (Bonderite sprayed at 120° F.) the temperature of the metal will not be sufficient to perceptably raise the temperature of the Bonderizing solution.

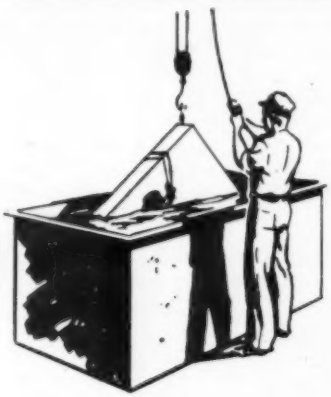
Next follows a cold water rinse, and in the fifth stage a phosphoric chromic-acid solution is sprayed at 170° to 180° F. After draining, cabinets pass through a dry-off oven operated at 250° F. Total time in washer and dry-off oven is 30 minutes. After leaving the dry-off oven, the cabinets are "blown off" and tack ragged.

Double Top Coat Applied in Pressurized Room

Just before entering the pressurized spray room the temperature of cabinets is raised to 180° F. by means of a short infra-red tunnel. The pressurized spray room contains two 2-man and one 1-man water-wash spray booths. Cabinets pass through the 1-man booth first, where the inside of each cabinet is given a heavy spray coat of white synthetic enamel.

In the second spray booth, two operators apply a double coat of white synthetic enamel to one side and one end of the cabinet, and

Save steel!
Save acid!
Save money!



USE OAKITE Pickle Control No. 3 to inhibit hot sulphuric-acid pickling baths! Use Oakite Pickle Control No. 4 to inhibit hydrochloric-acid pickling baths!

Oakite Pickle Controls minimize attack on steel without retarding action on scale or rust. They prevent waste of acid after scale or rust have been dissolved.

Steel is money! Acid is money! Oakite Pickle Controls save some customers up to 19 cents per ton on pickling operations!

In addition to these savings, Oakite Pickle Controls offer the following advantages:

1. Reduction of acid fuming — greater safety and comfort for workers.

2. Prevention of over-pickling and pitting —brighter surfaces, smoother bases for coats of tin or zinc.

3. Reduction of hydrogen embrittlement —greater protection against blistering of electroplated parts.

4. Cleaner work—better rinsing with less smut adhering to surfaces.

5. Retardation of iron-sulphate formation —longer life for pickling solutions, less spent liquor.

Free Demonstration. The Oakite Technical Service Representative in your vicinity will gladly demonstrate the efficiency of Oakite Pickle Controls. For new Special Report on "Improved Pickling and Neutralizing" write Oakite Products, Inc., 32F Thames St., New York 6, N. Y.

OAKITE

Specialized Industrial Cleaning

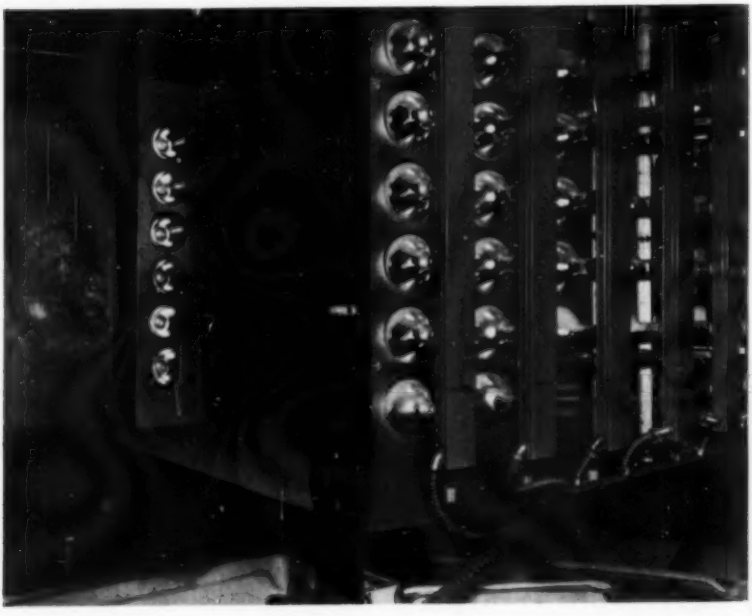
MATERIALS • METHODS • SERVICE

in the third booth, which is in reverse position in relation to the first two booths, the other side and end are given a double coat. This produces a finish thickness, in mills, of 1.8 to 2. Alkyd resin enamel is applied at a viscosity of 35 seconds at 80° F. (No. 4 Ford cup); atomizing pressure is 60-lbs. and the pressure at paint tanks is 10-lbs.

Finish Is Baked and Toe Stripe Is Applied

After a 3-minute flash period, cabinets enter a gas-fired oven where the finish is baked for 38 minutes at 310° to 315° F. peak temperature, which is equivalent to a 30-minute bake at 300° F. required by specifications. Cabinets cool for 15 minutes after being transferred to a horizontal power conveyor. Here a strip of kraft paper 16-in. wide is placed around the cabinets 6-in. up from the bottom. The paper is held in place at its top and bottom edges with 1-in. masking tape.

In a spray booth the horizontal conveyor line is separated to form a turntable. On this turntable the operator sprays a 2-in. gray stripe around the bottom edge of the home freezer cabinets



An infra-red tunnel is used to bring the temperature of cabinets up to 180° F. before they enter the pressurized spray room for application of the metal finishing coats.

Knowledge and Equipment of a "Finishing Specialist" solves problems —*improves finishing results*

When a Lowe Brothers "Finishing Specialist" was requested to analyze a manufacturer's enamel baking problem, specialized knowledge of finishing methods enabled him to solve the problem and greatly improve finishing results.

The manufacturer's baked enamel finish was not drying properly, even though the baking temperature was believed to be correct. The Lowe Brothers "Finishing Specialist" checked both the atmospheric and metal temperatures of the oven and found first that the atmospheric temperature varied as much as 25° from the temperature as registered on the thermometer. Furthermore, the metal temperature averaged 60° lower than the required temperature, because the deep piling of parts on the conveyor belt retarded their heating.

To compensate for these two temperature losses, the Lowe Brothers "Finishing Specialist" tried an increase in the atmospheric temperature. The test was successful and the enamel baked out perfectly.

Typical of the experiences of a Lowe Brothers "Finishing Specialist," this actual case history clearly shows how his background knowledge can help solve finishing problems and improve finishing results.

Why not have a Lowe Brothers "Finishing Specialist" check *your* finishing methods for possible improvement? No cost or obligation. Simply write to

The Lowe Brothers Co., Dayton 2, Ohio

Lowe Brothers
FINISHES FOR INDUSTRY

and a black stripe around ice-cream cabinets. The material used is a striping lacquer formulated to give exceptional abrasion resistance and good adhesion to baked enamel. Cabinets pass through an enclosed tunnel where recirculated warm air quickly dries the stripe.

Grilles used in home freezers and ice-cream freezing units go through the spray cleaning, Bonderite unit and dry-off oven, then are dipped in a white synthetic primer. They drain as they travel by conveyor to the pressurized spray room. Here they are given a double coat of white synthetic enamel. This finish is baked in the same oven as cabinets, and under identical conditions. [END]

Southern Varnish Announces Three High Appointments

The Southern Varnish Corp., Roanoke, Va., announces three appointments which are promotions in the firm's official organization.

Mr. J. M. Darby, Vice President and Assistant General Manager, has been appointed Director of Sales. He will have complete charge of all sales activities and sales promotion work; will retain his title of Vice President and Assistant General Manager, and will report directly to the President. Mr. Darby has been with the company since 1929.

Mr. Royal A. Brown, Technical Director, has been appointed Vice President in Charge of Research and Production. In this new position Mr. Brown will have complete charge of the Research Program, production and purchasing, and will report directly to the President.

J. M. Darby, V. P. of Southern Varnish Corp. is appointed Director of Sales

Royal A. Brown and Geo. A. Lenaeus.

Mr. Brown is a graduate of Marietta College, Marietta, Ohio, and has a B. S. Degree in Chemistry. He has had many years' experience in the paint and varnish industry and has been active in the affairs of the Federation of Paint & Varnish Production Clubs.

Mr. George A. Lenaeus has been appointed Chief Chemist of the company and in this position will have complete charge of the laboratory, and the laboratory staff will work directly under him.

Mr. Lenaeus is a new member of the firm. He is a native of New Jersey and has a B. S. degree in Chemical Engineering.

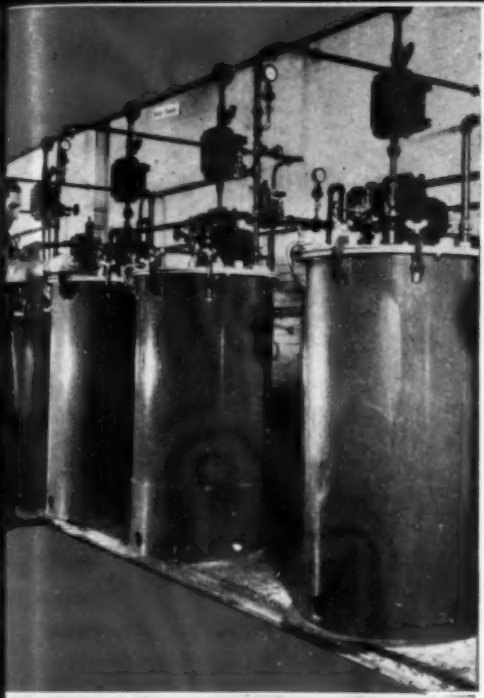
He has had many years' experience in the paint industry; formerly he was connected with paint and varnish companies in Newark, N. J. and High Point, N. C. During most of this time he worked in the laboratory as a development chemist.

Central Solvents & Chemicals, New Name for Hough Co.

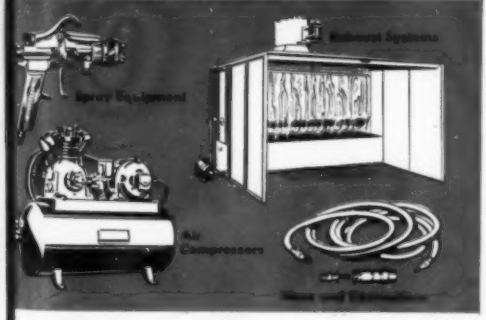
An announcement states that, effective June 1, 1948, the name William J. Hough Co. is changed to Central Solvents & Chemicals Co., which is more descriptive of the firm's business. The management and location remain the same, the latter being 2545 W. Congress St., Chicago, Ill.

Polishing Wheels; Buffers

The Bacon Felt Co., Winchester, Mass., has just released a new 16-page brochure covering the company's complete line of felt wheels, bobs, sheets, hair felt and marble buffers. This new brochure contains information on felt polishing products in general, as well as complete specifications on Bacon's Paramount Brand products.



A COMPLETE DeVILBISS LINE
TO SOLVE THE EXACTING FINISHING PROBLEMS OF ALL INDUSTRY . . . . .



. . . ans Quality *in all four* . .

SPRAY EQUIPMENT
EXHAUST SYSTEMS
AIR COMPRESSORS
HOSE & CONNECTIONS

DeVILBISS HINTS . . . on *Finer Finishing*

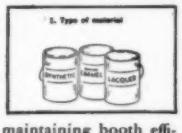
Compounding the Water Wash Spray Booth

A water wash spray booth, regardless of the nature of its use, its type or extent of its operation should always be compounded. By compounding is meant the treatment of the water with an alkaline substance which keeps sticky wet paint from fouling the water sheet, nozzles, jets and the circulating system besides acting as an inhibitor of rust. A properly formulated compound properly used will do this, promoting operating efficiency of the booth and lowering maintenance costs.

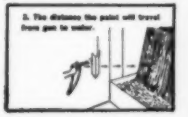
When slow air-dry or baking materials are being sprayed, the overspray reaches the water in varying degrees of stickiness. In combating this condition, the compound in the water forms a film around the sticky particles, preventing adherence to the chamber walls. These particles will float on the surface of the water and are removed by skimming.

When quick air-dry materials are being sprayed, the overspray reaches the water as dry powder, either sinking to the bottom of the tank, later to be removed as sludge, or harmlessly circulating with the water. While compounding is not necessary to overcome stickiness under these conditions, it is still needed as a rust inhibitor.

To secure the most efficient results, the correct amount of compound must be used. Since it is impossible to determine this before testing under actual spraying conditions, the booth is intentionally over-compounded first, and then gradually, by experimentation, brought down to the proper concentration. In determining this first amount, the compound manufacturer's instructions should be consulted, and consideration given three variable factors—type of material, volume of water, and distance paint travels from gun to water.



Once the correct concentration has been found by actual testing, it should be maintained by addition of compound as indicated by titration tests made at least twice each shift. In maintaining booth efficiency, two other factors are important. The floating paint residue should be removed by skimming at least as often as compound is added—more often if necessary. If too much is allowed to accumulate, some will sink, be drawn into the pump intake, and cause clogging of the header and nozzles. When this happens, the water flow is restricted, and the booth soon ceases to function as a true water wash booth. Maintaining the water in the booth at the level indicated by the booth manufacturer is also very important. If water level is higher, the "throat" size of the booth is reduced, restricting air flow. If lower, paint residue floating on the surface of the water may be drawn into the pump intake, causing clogging of the header and nozzles.



Painting Chevrolets in

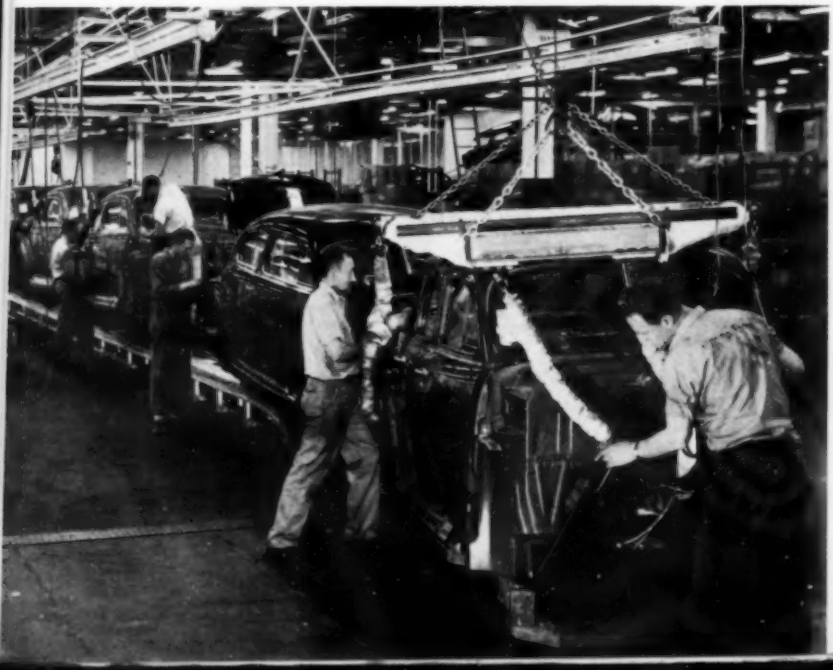
Chevrolet's new Los Angeles plant has the latest production equipment for preparing metal surfaces to be painted, applying prime and finish coats, baking the coatings and then polishing to get a smooth lustrous finish.

By FRED M. BURT

WELL-PLANNED standardized procedures, close controls, and meticulous carefulness are prime factors in the extensive operations of the highly mechanized paint department of Chevrolet's assembly plant at Los Angeles, under the supervision of Paint Supt., Lawton J. Muncy.

This newest of all General Motors plants is located in the middle of the San Fernando Valley. Its two assemby lines have a capacity of 40 passenger cars and 15 trucks

Bodies coming off the line, ready to be lowered to chassis on assembly line, on floor below.



California Plant

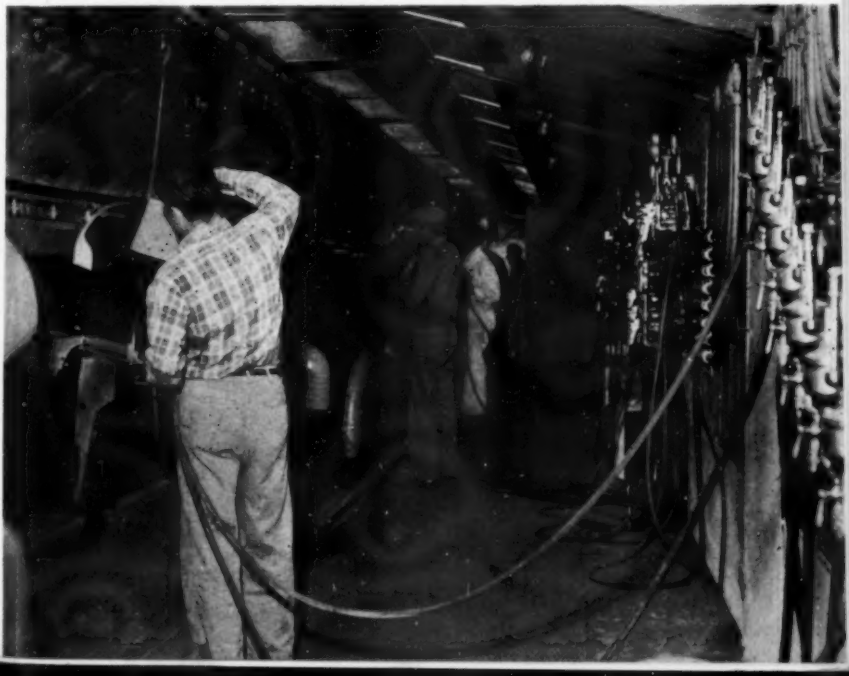
an hour. It has 3½ miles of overhead conveyor system (including power and free conveyors) and two miles of floor conveyor, including the Fisher Body Division which occupies approximately one-third of the property to assemble Chevrolet passenger car bodies.

In this article I will describe and illustrate some of the main operations on the Chevrolet side, such as sheet metal buffing and dinging, cleaning and Bonderizing, dipping and baking the prime coat, spraying and baking the finish coats, and final polishing—with accessory and lesser intermediate operations. In general, the same types of equipment and finishing techniques are employed on the Fisher Body side, in preparing bodies for floor conveyor delivery to the Chevrolet side.

Setup for Painting Chassis Frames

After the "overhead power and free trolley conveyor" system (starting with the chassis frame) has

Finish color spray booth has exhaust through water curtain at left and grille in the floor.



carried the successive units through progressive assembly operations, including the motor "shake in", the chassis frames pass through a double water-wash spray booth in which a coat of black chassis paint is sprayed on. The conveyor itself is above and out of the way of the actual spraying.

The working height at which chassis frames are suspended from the conveyor is such that an operator can spray from above, and also underneath, without turning or handling the chassis in any way. In case it is desirable, the overhead conveyor can be adjusted to rise or dip down to position the chassis at the most convenient working height for the operator.

In these water-wash spray booths, as in all others in the plant, the air moves in such volume and at such velocity that all fumes and overspray are pulled away from the spray painters immediately, so there is no need for any workmen to wear a mask or respirator. All overspray paint is completely precipitated in the water-wash system, so that nothing but clean air is released through the exhaust ducts.

Sheet Metal Parts are Cleaned and Bonderized

Sheet metal parts are unloaded from cars spotted on the railroad siding inside the plant, and are placed in a large storage area. In the adjacent metal finishing section, on benches and on a 96-ft. floor conveyor, all metal surfaces are smoothed to the standard condition, with all mechanical defects removed. *(To page 40)*

View in paint mixing room, showing several 60-gallon tanks (each of which is fitted with a motor-driven interior agitator) from which materials are piped to several spray booths.

● Here's an M&W finish that permits accurate retention of all desirable surface qualities of most metals . . . that adds lasting protection against heat, cold, weather, corrosion, stain and perspiration — Dulac Clear Universal Lacquer #462. It's formulated to give good adhesion with either the spray, dip or brush method. And it fits into fast production schedules because in five to ten minutes this successful general purpose lacquer dries out of dust . . . hardens in one hour. For complete information, write for Technical Data Bulletin 110 or let an M&W technical consultant discuss your requirements privately with you.

PIONEERS IN PROTECTION M&W Co. 1876

. . . where industry goes with finishing problems

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PRODUCERS OF LACQUERS, ENAMELS, SYNTHETICS AND SPECIALIZED PRODUCTION FINISHES

Hoods and fenders are transferred from this buffing conveyor and hung from special fixtures to a 970-ft. overhead conveyor. Other parts are loaded at other points along the line, as scheduled. In elevated position, close to the entrance end of the 240-ft. long Bonderite washer unit, there are three identification panel boards which hold labeled samples of all the many small parts that must be cleaned and Bonderized.

In the washer, the parts are carried through various spraying systems as follows:

1) Solvent emulsion cleaning solution at 160° F.; 20-ft. travel; 20-ft. separation.

2) Clear water rinse at 170° for 10-ft.; 10-ft. separation.

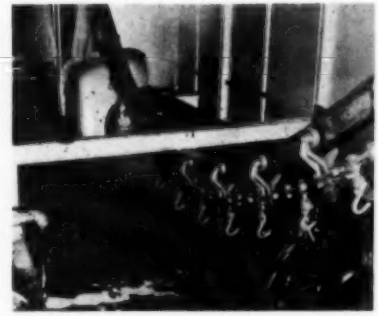
3) Clear water rinse at 130° to 140° F. for 10-ft.; 20-ft. separation, with inspection door.

4) 20-ft. of spray nozzles in a 30-ft. section, for application of No. 125 Bonderite solution, to apply a thin tight layer of phosphate crystals, integral with the surface of the metal, to produce a corrosion-resisting paint base and help anchor the organic finish to the metal. Solution temperature 135° to 138° F.; 20-ft. separation, with inspection door.

5) Clear water rinse at 135° F. for 10-ft.; 10-ft. separation.

6) Chromic acid rinse at 140° to 160° F. for 10-ft.; 24-ft. separation.

7) Dry-off oven, 450° F. for 40-ft.



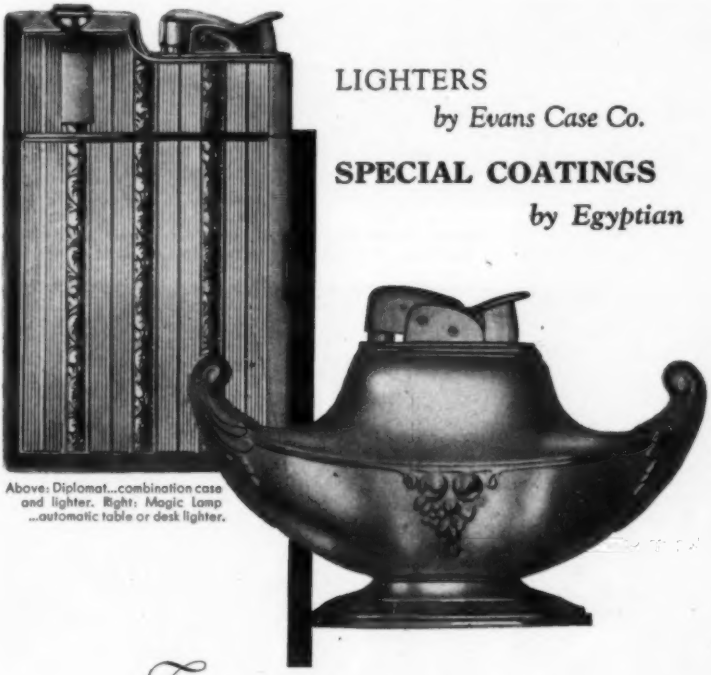
Clean fenders are prime coated by dipping the conveyor bends down to immerse them in a tank containing 8700-gallons of material which is closely controlled to maintain uniform viscosity and temperature.

Similar Setup for Automobile Wheels

Paralleling the metal-cleaning Bonderizing setup just described is another one which prepares wheels for painting. The wheels are washed, rinsed with clear hot water, then rinsed with an acidified rinse which conditions the rinse water and the surface of the wheels. The 2200-ft. overhead conveyor also carries wheels through prime coat dipping, thence to the roof oven for several passes, and finally delivers them to the point of use for finish painting and another baking cycle.

Dry-off Oven and Tack Ragging

Fenders, hoods and other sheet metal parts, after leaving the dry-off oven, are conveyed up to the second floor where they are transferred to a prime painting and drying conveyor which is 1600-ft. long. No bare hands touch any metal surface to be painted. This is to guard against even the tiniest deposit of grease or perspiration salts, any of which might prevent a perfect bond between the paint



LIGHTERS
by Evans Case Co.

SPECIAL COATINGS
by Egyptian

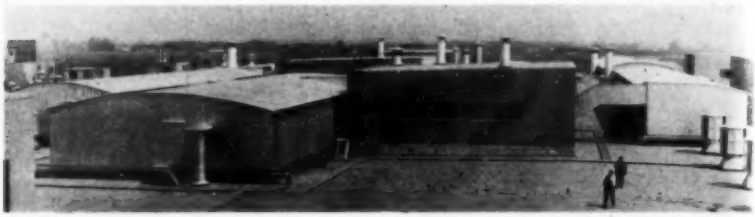
Above: Diplomat...combination case and lighter. Right: Magic Lamp ...automatic table or desk lighter.

To give beauty and lasting quality to their fine lighters, Evans Case Co. turns to Egyptian specialized finishes. Egyptian 1-CP Baking Synthetic Clear is used on the gold plated upper lighter-case combination. Egyptian 4-CV is used on lower lighter which has a silver finish. 1-CP is hard and durable, almost mar-proof, highly perspiration resistant. Spray or dip. Cures at 250° F. 4-CV protects against tarnish without affecting natural color. Spray or dip. Air dries to handle in 10-15 minutes at room temperature. Force dry half hour at 200° F. for best results. Send for new and valuable free booklet, describing six Egyptian clear metal finishes . . . just off the press.

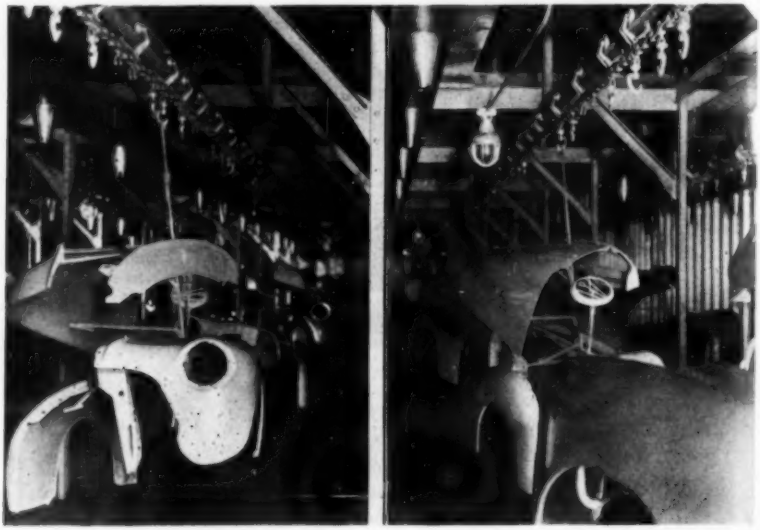
THE EGYPTIAN LACQUER MANUFACTURING COMPANY

SPECIALIZED PRODUCTION FINISHES

P. O. BOX 444, NEWARK, N. J.



On the factory roof are five baking ovens, through which coated parts are moved by the conveyor lines that come up from and then descend to the second floor of the plant.



Inside one of the baking ovens on roof; a 550-ft. trip at 10-ft. per minute; heat, 185° F.

and the metal, and therefore cause the paint to flake or peel at such points sooner or later. An added precaution is to wipe the surface with a tack rag just before the fenders and hoods enter the prime dip tank. The tack rag picks up and removes any particles of dust that may be on the surface.

The units are dipped by conveyor into an 8500-gallon tank containing the primer. They move out and over closed-in sloping drip areas and two drip salvage tanks which feed the paint drippings back into the large dip tank. A recirculating system constantly pumps the paint through a filter, and a cooling sys-

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UNITED LACQUER PRODUCTS have "what it takes" to keep production and sales both moving fast. Free flow, rapid drying, and a hard, tough, perfect finish increase the "eye appeal" of your furniture, fixtures and appliances.

UNITED High Speed Lacquers have been tried, tested and proved superior by manufacturers. In gloss, satin or dull finishes they're absolutely uniform in quality and performance. Every standard formulation is time tested for durability.

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United Lacquer Mfg. Corp.

General Office, Laboratory, Factory: LINDEN 3, NEW JERSEY
New England Plant: EVERETT, MASSACHUSETTS

tem keeps the primer at a safe and proper temperature for dipping. From here the parts are conveyed up to the baking oven on the roof.

From the roof oven the conveyor carries the fenders and hoods back down to the second floor, to a transfer area where they are placed on the finish coat conveyor which is 1400-ft. long. Again the fenders and hoods receive a tack rag wiping before entering the spray booth where the finish coats are sprayed.

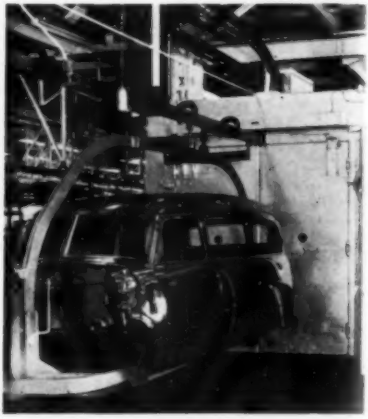
Finish Coats Sprayed on Fenders and Hoods

In the 80-ft. water-wash spray booth wherein finish coats are applied, each spray operator has easy access to hose connections for eight different colors. These are directly connected by pipe lines to the central paint room, or to pressure tanks located outside the spray booth. Any color is instantly available, as required, at each spray-painting station.

When the finish coats have been applied the conveyor carries the units up to and through an oven on the roof. There are five of these ovens on the roof, for "Sheet Metal Prime", "Sheet Metal Duco", "Wheel Dulux", "Wheel Prime", and "Sheet Metal Dulux" (for truck parts). Placing these ovens on the roof instead of on the second floor, was the means of saving a large amount of valuable operating space under the roof.

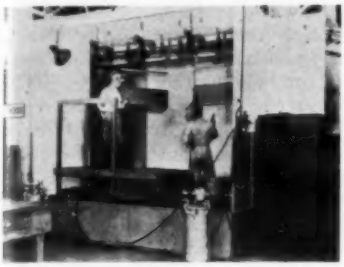
Polishing Line for Fenders and Hoods

Leaving the finish coat baking oven, fenders and hoods are conveyed back to the second floor to the polishing line, and to fender storage and hood storage conveyors. Fenders and hoods are placed on polishing jacks and carried through polishing booths where they receive their final fine polishing. A spray booth located beside this conveyor is used for any spray repair work that may be needed. On its return travel the conveyor carries the polished hoods and fenders to transfer and storage areas, where they may be placed on storage racks, or on the hood or fender delivery conveyors which carry them to the passenger car assembly line on the first floor.



Car body on the truck-and-commercial car line has just come out of baking oven, the doors of which open automatically.

The prime coat painting and drying line, in its return travel from the oven, parallels another booth wherein finish coats are sprayed on many of the small parts, as well as on commercial and truck hoods and fenders. From this 40-ft. spray booth, the parts are car-



This M & E water wash booth is in the Servel plant at Evansville, Ind.

These two M & E water wash booths are in the Cincinnati Coffin Co's plant in Cincinnati.

These M & E water wash booths are used to coat small metal parts in the plant of Climax Machinery Co. in Indianapolis.

M & E

WATER WASH BOOTHS

In previous ads we have featured Dry Type Finishing Systems, Heavy Duty Exhaust Fans, Thermatic Units for applying finishes at elevated temperatures—and now we show here a few of the many water wash booth installations by M & E.

M & E water wash booths reduce fire hazard, cut operating costs, increase production, with less maintenance required. Ask us for more information or write for Industrial Catalog.

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M & E

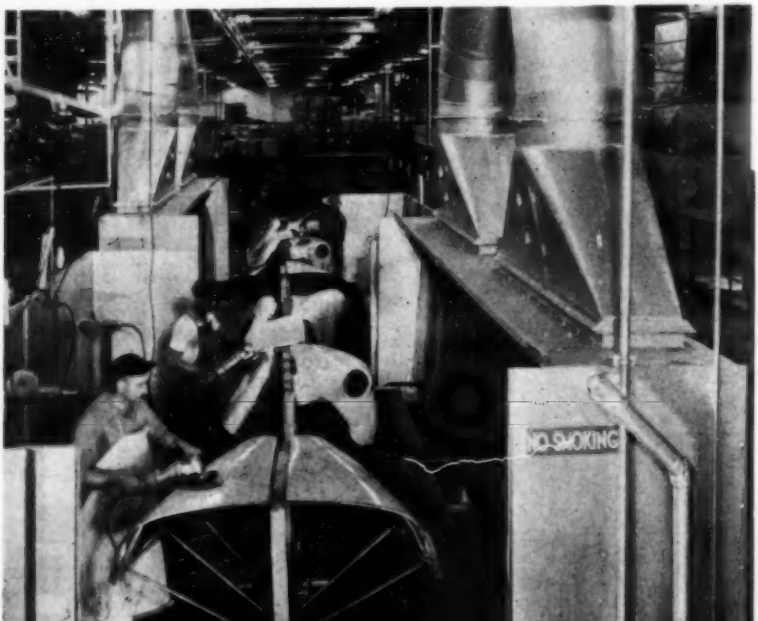
MANUFACTURING COMPANY
INDIANAPOLIS 5, IND.

Paint Spray Finishing Systems
Engineers and Designers

ried by overhead conveyor to the "Sheet Metal Dulux" oven, and then back to the second floor for transfer to the "Sheet Metal Parts" delivery conveyor.

Cabs and Panel Units Spray Painted; Baked

In a large area on the second floor, cabs and panel units for commercial cars and trucks are moved by overhead conveyor through a 31-ft. water-wash spray booth, then through three 15-ft. spray booths for application of the prime coat, and on through a 100-ft. prime coat oven. Upon leaving the oven, these parts move through two primer sanding booths. From here the cabs or other units can move into either of two similar finish spray booths. They are double booths, each section about 20-ft. long, and they are in staggered position for



After the last coat of finish is baked, all hoods and fenders are given a final polishing.

spraying each side of the cab. The two overhead conveyors from the spray booths carry the finish sprayed cabs and panel units through an oven and then to the storage lines.

Two-tone paint jobs have their first color applied in spray booths previously mentioned, after which the color is baked. The second color is applied in another 2-section spray booth and then baked in an oven nearby.

Everything Together at Proper Time

Since the assembly operations consist of many parts and sub-assemblies, of different colors and styles, put together as required, the operation of all "feeder lines" leading to the main assembly line, must be carefully timed and scheduled so that the proper colors and parts meet at the proper time. This is done by means of a telautograph system. The master station is located at the end of the Fisher Body Assembly line, where the operator writes a description of each body as it goes on its way to Chevrolet. This description is transmitted electrically to ten substations located at stragetic points on the Chevrolet side.

A careful study of the operation and equipment in this plant offers an excellent lesson on the advantages of advance planning and the utilization of a great backlog of recorded experience, plus the adoption and use of many modern improvements. Every single one of the thousands of operations in all of the departments is performed according to a standard which is set up, recorded and indexed in fine

Truck cab receiving its final color coat on one side, before being moved to next booth for a spray coat on the other side.

detail in the procedure manuals, but it is subject to change any time a better method is found. From Plant Manager L. C. Fitzgerald on down, the establishment is staffed with key men who have had long experience, working up the hard way of diversified practical experience, plus taking advantage of excellent training facilities made available by Chevrolet.

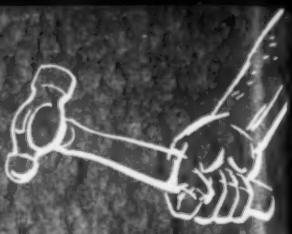
William B. Chase Joins Zapon Sales Staff

The Zapon Division of Atlas Powder Co. announces that William B. Chase has been appointed to the sales staff, as a representative in the Boston area. Previous to joining Zapon, Mr. Chase was with another manufacturer of finishing materials. He is a resident of Ipswitch, Mass. During the war he served as a Lt. Commander aboard the aircraft carrier Enterprise.

Vinylite Resins and Plastics

Under the above title, Bakelite Corp., 300 Madison Ave., New York 17, N. Y., has published an informative illustrated book of 40 pages, 8½x11-in. Many of the illustrations are in rich full colors. Surface coatings and adhesives are included among the several subjects treated in this new copyrighted book.

One Coat HAMMERED FINISHES



Some practical suggestions about decorative one-coat hammered finishes, baking and air-drying, including the correct technique of spraying them successfully.

By JOHNNY NAGER*

THE RECENT development of one-coat hammered finishes by leading manufacturers of industrial paint requires, I believe, an explanation as to their application and use. The material is generally suppied ready for use, requiring no solvent for reduction. The operator uses approximately 30-lbs. air pressure and 12 to 15-lbs. fluid pressure on his pressure tank.

The object is to have the material "spit" rather than atomize from the gun nozzle. Suction cups (cup guns) can also be used, but better results can be obtained with a pressure tank due to the fact that the material can be controlled much better and the "spitting action can be accelerated if desired. No special equipment is necessary.

Texture and Pattern Can Be Controlled

The texture and pattern can be controlled, to a large degree, by maintaining a uniformity of the coating material deposited on the object being coated. The general spraying practice is to make two passes over the work, using one vertical and one horizontal pass. Care should be taken to avoid overloading the surface, as "texture flow" will result and the desired pattern will be lost. If the item is to be baked, a period of air drying, say 15 minutes, should be allowed, as heat applied too fast tends to flow the pattern. The usual baking schedule is 300° F. for 15 minutes.

Hammered finishes can also be supplied in air-drying synthetics, which are satisfactory, therefore they can be used on wood and other surfaces that cannot stand much heat.

I understand that one large manufacturer of metal products is having success with this finish,

*Technical Sales Representative for—United Lacquer Manufacturing Corp.

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using the new automatic electrostatic conveyor spraying process. This is understandable, as a great deal depends on a uniform coating of the object.

Metal to be finished in hammered effects should be fairly uniform in color and brightness, as the coating material leans toward the transparent side, and black spots or "blued" metal are difficult to cover. However, after a short air-drying period the operator can "spot spray" these defects and obtain coverage wherever necessary.

As a rule the rate of coverage (mileage) is extremely good because of the large amount of aluminum contained in the vehicle. The fact that the material is not generally cut should not be considered a serious handicap, from a cost point of view, as its extreme mileage far outshines the general run of ordinary synthetic enamels.

Slight imperfections in the metal being painted—for example, weld marks, crazed or sandblast effects, slight surface scratches, scuff marks from grinders, etc.—can be completely covered. The texture of the hammered effect tends to take the eye focus away from these blemishes.

Although different manufacturers of hammered finishes may recommend slightly different techniques, I believe that if the general procedure outlined in the foregoing paragraphs is carried out, little difficulty will be encountered.

A hammered finish can be used to good advantage on rough castings, to hide metal imperfections. It is often preferred to similar finishes that have these characteristics, because of its apparent rough but actually smooth surface. For this reason, cleaning, dusting and washing are easily accomplished. This makes it readily adaptable as a finish on many household items, office equipment and industrial machinery, where cleaning is always a problem.

On most metals which have been properly cleaned, adhesion to the surface is exceptionally good. Flexibility and long range abrasion tests have proved that the hammered finish is superior to many others.

In conclusion, I wish to say that, after 20 years of handling almost every type of industrial protective coating, this new development in finishes is certainly a "feather in the cap" of our leading laboratory technicians.

CORRECT FILLING PROCEDURE—In many furniture schedules the wood is stained, wash-coated, filled, sealed and then coated with gloss or flat lacquer. When there is any difficulty in getting a good filling job over a stained or washcoated surface I would first find out whether or not the operators are wiping the filler too soon after it has been applied. Then see if they are using a filler that is reduced no more than 10-lbs. per gallon of solvent. VM&P naphtha is the best solvent for filler. Also, make sure that the workmen are wiping the filler across the grain of the wood, so that the filler "breaks off" level with the surface of the wood being filled.—R.W.

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. . . a Binks Automatic Reciprocating Spray Machine will cut your finishing costs and give you better finishes to boot . . . . .

Flat surfaces such as wallboard, linoleum, plywood, skins, imitation leather, tile, glass, shingles, range and refrigerator parts, textiles, blackboards, paper, are only a few of the many products that are finished fast and automatically by a Binks Automatic Reciprocating Spray Machine.

The Binks Automatic Reciprocating Spray Machine does all the work, never fatigues . . . the only manual job is to keep it supplied with work. Every piece is perfectly finished. Film thickness is minutely controlled. Materials are applied smoothly and evenly, without marks or laps. Product-appearance is enhanced and inspection and reject problems are reduced to the vanishing point.

When Binks Automatic Reciprocating Spray Machines are combined with Binks Dynaprecipitor water-wash spray booths, a pleasant paint-free atmosphere is maintained because all fumes and over-spray are whisked away through the water curtain.

Pigments, frit and solid material are quickly washed out and collected for reclamation. Fumes are exhausted into the outside atmosphere. With a Binks Dynaprecipitor Booth on the job, there is no industrial health problem, no fire or explosion hazard, and no expense for spray-booth cleanup.

What's your problem? Binks Automatic Reciprocating Spray Machine is fully adjustable and has been adapted for finishing many different kinds of flatware. Even if you consider yours a "special" problem, the chances are more than good that Binks engineers have dealt with a similar problem . . . can apply established automatic finishing methods that will produce better finishes for you . . . faster and for less money. Let a Binks engineer show you how.

"...Binks automatic finishing machines have revolutionized many large American industries..."

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Requirements of process lacquers for decorating pennants to be flown outside; what was developed; how the pennants were screen printed and dried on a production basis and what long exposure and performance tests revealed about color, fungus attacks, etc.

Silk Screen Printing of

DURING the past year we were approached by a small textile printing company, which specializes in silk-screen decoration of fabrics, to formulate and manufacture a lacquer for silk-screen application to outdoor advertising banners. These banners were to be flown outdoors, throughout the Southwest, at service stations of a leading petroleum marketer, inviting the public to listen to football games being broadcast under the sponsorship of this marketing organization.

Jules White and Walter Sherrill team up on the silk-screen printing operation in their Houston, Texas, plant. After each color impression the stencil is moved to an alternate position marked by register guides on the base rail which parallels the printing table.

By JOHN W. NEE
Technical Director
Napko Paint & Varnish Works

Pennants in Colors

Requirements of Process Paint for Pennants

The problem of manufacturing the pennants or banners was one of securing a silk-screen printing color-bearing medium that would have the foilowing properties:

1) Sufficient viscosity to permit silk-screen printing, yet enough flow properties to insure uniform coverage of the area printed.

2) Drying characteristics which would enable the operator to overlap frames, when making successive runs or changing colors, without smudge or pick-up.

3) Control of drying to prevent make-up in the screen, or clogging of interstices with dried lacquer.

4) Brilliant colors of sufficient depth to give true colors without fabric showing through.

5) Weatherproof colors and binder, able to endure outdoor exposure, without undue fading on exposure to sunlight and rain.

6) Color binder of sufficient flexibility to preserve the hang or natural drape of the fabric, as pennants have to blow free when wind borne.

7) Solvents sweet enough in odor and without toxic effect, due to casual inhalation, that would have effect on operator working over open screens.

8) All materials to have penetration effects sufficient to strike through to reverse side of the fabric up to 70% to 80% of the color intensity obtained on initial printed side.

9) All materials in the complete range of eight colors to provide the above listed properties when silk screened on 64-72 cotton, 250-lbs. per 1000-yards (54-in.), sized with wartime synthetic starch.

To meet these specifications we attempted to produce, in eight colors, a lacquer that would give all around satisfactory performance. Several formulations were tried. Selections of pigments for this application, to match the color standards required, were made from the following: Molydate orange, medi-

um chrome orange, lithol red, ultramarine blue, titanium dioxide (Rutile), medium and deep chrome greens and medium chrome yellow. To match one standard—a purple—it was necessary to use small amounts of Tungstated Methyl Violet toner, in spite of its poor color retention on exposure to sunlight.

What Our Materials Were Made of

The pigments were commercially dispersed in nitrocellulose and purchased as such in convenient concentrations of pigment and nitrocellulose. This method of dispersion of pigment resulted in cleaner and brighter colors, which pigments dispersed on conventional machinery in alkyd phase did not yield.

The vehicle composition was of nitrocellulose because we could obtain speed of drying, with low solids, and thus have penetration, good binding, weather resistance and, with proper plasticizers, the necessary hang or drape of the finished fabric. Several plasticizers were studied. By process of elimination it was possible to choose a combination of alkyd resin, oil and chemical plasticizer as the most suitable for this use.

The alkyd resin used was of the non-drying type commonly used in lacquers, with an oil content of 34% and a phthalic anhydride content of 43%, reduced in xylol. This alkyd had sufficient color retention, plasticizing effect and pigment binding qualities to fill all the requirements of our specification: and, when balanced with raw castor oil and di-butyl phthalate as a chemical plasticizer, it yielded exactly the correct drape desired in the pennants and banners, without sacrifice of necessary drying speed.

To the alkyd-oil-plasticizer combination we added sufficient extra nitrocellulose to satisfy the binder requirements of the particular pigment and to effect the balance between the nitrocellulose in the dispersed paste and remainder of the non-volatile portion of the formula. This addition of nitrocellulose offered an opportunity to establish the viscosity range necessary to handle well in the silk-screen printing process.

Viscosity control posed one of the most serious problems in this formulation, due to the effect of viscosity on, 1) screen handling, for example, the ability to apply by this process; 2) to maintain handling ability and yet allow sufficient penetration to meet the 70% and 80% strike-through to the reverse side; 3) the maintenance of adequate viscosity to hold a sharp definition of copy when printed; 4) the balance of each of the three properties just mentioned to yield their maximum efficiency.

Viscosity Tests and Solvent Combination

Results of tests with various viscosity levels, as tested on a small screen, indicated the use of 5 to 6-second nitrocellulose as the proper viscosity to obtain as many of the characteristics heretofore indicated as possible. A nitrocellulose solution of 5 to 6-second viscosity was made in the conventional equipment, using cellosolve acetate and butyl cello-

Berry Brothers offers Something Extra* *for products sprayed* ELECTROSTATICALLY

* To do the most efficient and economical job, the paint used in an electrostatic spray system must be properly formulated for each individual product. That takes experience plus service. And that's the "something extra" you get in every Berry Brothers finish. Here is the Berry Brothers way. First we analyze. Next we formulate and test. Then when the finishing job is actually started, technical personnel are on the spot.

Whether you're using the electrostatic method . . . or any of the other finishing methods, let our experts check over your requirements . . . they may be able to suggest improvements. Write today. Berry Brothers, Detroit 7, Mich.

Shown above is the recently installed electrostatic spray unit in the finishing department of Peninsular Metal Products, Detroit.

solve as the solvents. This solution was made in the following concentration:

5 to 6-second nitrocellulose	23½%
Cellosolve acetate	49½%
Butyl Cellosolve	26½%
Total	100%

This formula yields a reasonably high-viscosity solution which, when added in proper quantities to each formulation (determined by amounts of nitrocellulose in the color dispersion), resulted in viscosity that most closely matched the requirements of the specification.

The solvent combination of the lacquers was determined by a series of trials, using a small silk screen to print a series of designs, and checking the drying of the lacquer in the screen, the drying time of the print itself, and the strike-through of the lacquer to the other side of the fabric. It was soon determined that even if the drying time and viscosity could be obtained with the use of reasonably high amounts of lean solvents as diluents, the penetration into the fabric was adversely affected.

Fast Drying and "Strike Through"

Measurements made of penetration into the cloth body, and intensity of color carried through to the reverse side, indicated that the use of large quantities of diluents, or the inclusion of rapid evaporating solvents in other than minimum quantity necessary for viscosity and drying time, interferred with the fulfillment of this important requirement.

The balance of solvent and diluent in the lacquers was studied, the object being to obtain the maximum drying speed conducive to rapid handling of the printed surface, maximum strike-through or penetration to the reverse side of the fabric, and minimum amount of drying of the lacquers in the screen, which would result in clogging the mesh.

The final average solvent-diluent composition in the lacquer was of the following approximate percentages:

	(percent)
Butyl Cellosolve	16½
Cellosolve Acetate	16½
Isophorone	8
Solvesso No. 150	16
Ethyl Alcohol	11½
Ethyl Acetate	7½
Xylol	22
Toluol	2
Total	100%

The ethyl alcohol and ethyl acetate and the small amount of toluol were introduced by the commercial pigment dispersions. Since the amount of pigment dispersion used in each color formulation differed with the quantity of pigment in the dispersion (the amount of pigment required to give adequate hiding to the lacquer) then the percentage quantity of volatile material introduced as part of the dispersion naturally varied from color to color. Due to this variance it was necessary to watch closely the remaining balance of volatile portion in each lacquer to avoid too high a quantity of non-solvent being used.

It will be especially noted that the volatile percentage given could be only a rough approximation of what was used in any one of the eight lacquers made, but it does

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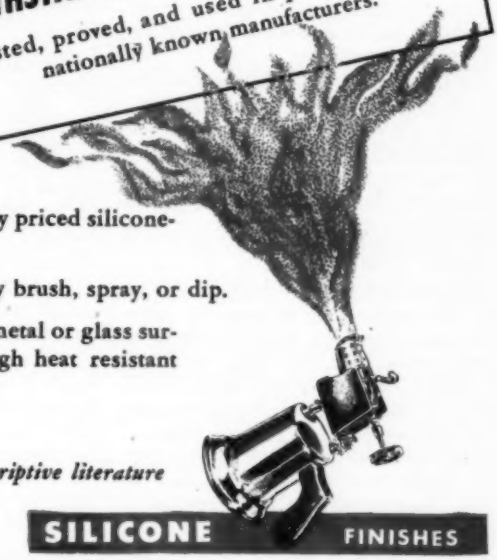

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represent a mean average of the volatile matter of all the formulations.

Probably the formulation of these lacquers can be simplified and changed—perhaps radically—by a skilled lacquer formulator. These formulations are not offered as the ultimate in silk-screen lacquers, but merely as an example of a system that has worked successfully. It is hoped that the experience gained on this closely checked formulation and follow-up, on a commercial application, will lead to additional interest in this method of approach to an industrial problem by surface coating formulators.

Our activities and interest in this application of a tailor made coating did not end with the manufacture of the product. We went on and made a complete study and recording of the results obtained by the use of these lacquers.

Fabric Was Screen Printed in Two Colors

The application of these lacquers to the cloth was by a commercial silk-screen printing firm. As indicated in our original specification for the materials, drying time was of importance for several reasons. This fact will be shown more clearly when the process followed in the decoration of these banners is outlined.

The original contract called for the manufacture of 10,000 pieces of decorated fabric, each to be printed in two colors—except those where the white cloth itself was used to represent white, either as a background or as the letters on a colored background.

Silk-screen printing was all done by, 1) single color reverse printing, leaving letters white on fabric without any surface coating; 2) by single color positive printing, such as colored letters on a white fabric-field; or 3) by a 2-color reverse print. In this 2-color reverse print, the lettering was printed first; then the field was printed so that the register was imprinted approximately ¼-in. over the edge of the original single color print. By handling this 2-color reverse print in this manner it was possible to achieve the effect of shading on the lettering.

Details of Screen Printing Technique

All printing was done on an 80-ft. table, using screens made with 10xx silk on 40x70-in. frames. Each frame had four 15x27-in. pennants to be reproduced at each station, except the rectangular banners which were two to a frame.

In actual production, 80-ft. of fabric was laid down on the table. Register stations were marked by steel clamps on the angle iron railing at the edge of the table. The screen was placed on the table and work started. Frames were printed in alternate stations once down the table. Drying time was so designed that at the end of one color alternate run, the six or seven minutes elapsed time allowed a second run to be made without any damage of smudges or pick-up. The complete pattern was imprinted with one color on 240 pennants (15x27-in.) in 12 to 14 minutes.

When two colors were printed, the first color was laid down in

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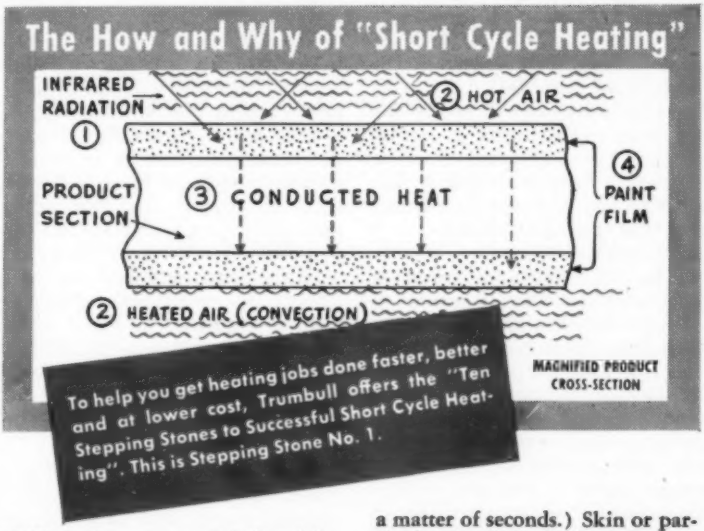
alternate pattern and the screen was returned for fill-in of blanks. The second screen was set and the second color run, also in alternate. This system produced 240 pennants (15x27-in.) in two colors in 30 to 40 minutes. The drying time to handle was six to eight minutes, thus speeding up production on an 80-ft. table, since it allowed for re-setting the screen on alternate prints without smudging.

The entire 80-ft. of fabric was then festooned on dowels until the whole reel was printed. During these operations the lacquer was of such consistency that it printed excellently through silk mesh (100 per sq.in.) and held a sharp definition of copy. The penetration was 70% to 80% through to the reverse side. The drying speed of the printed pattern would have ordinarily indicated some handling difficulty, but there was no tendency to make-up in the screen and clog the mesh.

Sharp variations in humidity caused some need for a slight reduction of the lacquer viscosity at times; this was accomplished by slight additions of a commercial lacquer thinner. Clearing and cleaning of the screen mesh and frame was accomplished by use of a cheaper grade of lacquer thinner. Special care was taken here to avoid use of thinners with high

Uncut Baylor pennants are drying on overhead hangers above Texas pennants on 80-ft. table. Completed pennants at left have had their edges sealed, and grommets have been inserted.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moisture content, especially those in the alcohol family, for fear of damage to the screen pattern by the solvents when scrubbed.

The fabric was cut to shape and edges were sealed with a special air-drying latex to avoid raveling and fraying. Each pennant was fitted with two grommets for hanging on rope when on display.

Each of these banners was in the form of a pennant, showing the names and colors of schools in the Southwest Football Conference. The banner identifying the sponsoring organization was also printed in the two standard house colors of the company. These pennants were flown during autumn football season to round out an advertising program used to promote listener interest in the series of broadcasts of football games in the Southwest.

These brightly colored pennants performed their job of rounding out the sponsor's football season advertising program by effectively tying-in every dealer with a fine series of game broadcasts, and promoting listener interest throughout a wide area.

Our experience with this account included exterior exposure of several of the pennants for periods of six months. At the end of this time, exposed here on the Gulf Coast during the winter, in an industrial area, we found the colors slightly faded and pennants suffering more from accumulated dirt that from failure because of the weather.

One observation concerns a type of failure prevalent to this climate. Pennants were attacked by mildew on areas not coated by the lacquer, which included attack on all areas where the cloth was left uncoated to act as a white surface. Evidently this was caused — at least in part—by the starch filler acting as a host for the parasite. This can be guarded against by treating the finished article with one of the common fungicides used for impregnating cloth. Care should be taken to obtain a mildew-proofing agent of good color, and also one stable enough to withstand outdoor exposure. Pennants on interior exposure also showed some indication of mildew on uncoated areas, indicating that such protection should be given even if the article is designed for interior use.

It is our opinion that this approach to an industrial problem—namely, survey and follow through—is unique in the coating industry in the Southwest. Such handling of inquiries for specialty operations calls for complete cooperation between the user and the manufacturer of the surface coating, and often it must include the consumer of the product coated. It is only by such close liaison that out-of-the-ordinary materials can be formulated and manufactured to the complete satisfaction of all concerned.

Author's note: I wish to express my appreciation and thanks to the printers of the pennants—Sherrill-White Fabrics, Houston, Texas—without whose cooperation and sincere interest, successful formulations of these coatings would not have been possible, and to the Humble Oil & Refining Co., for whom the pennants were made, for permission to use this material. [END]

Training a Superintendent

By ROLLIN H. WAMPLER*

A few practical suggestions on how to train a new man to become superintendent of finishing in a modern manufacturing plant.

A MANUFACTURING concern has written the Editor of this magazine relative to a training program which would fit a young man, inexperienced in the art of finishing, to become a finishing superintendent. The Editor has requested me to send in some suggestions on the subject.

This is quite a large order. In the beginning we must face the lamentable fact that there is no university or other institution in the land (none so far as I know) that offers even an elementary training course in the art and science of finishing.

Old-time finishers, apprenticed to master finishers and learning their trade by many years of keen observation and hard work, are disappearing from the scene. This may be due, in part, to the vastly increased tempo of advances in the field of organic finishing materials. The old masters had time to learn the quirks and peculiarities of the materials with which they worked, and then they did not have very many to work with.

*Author of "Modern Organic Finishes, Their Application to Industrial Products."

Today a finisher has many more materials, some of which were only laboratory curiosities a few years ago. By the time a finisher becomes familiar with one material, a new one has arrived to take its place. It almost seems that a finisher must be a chemist as well as a production expert.

In many plants, when a new superintendent is needed, a skilled workman is advanced to the job. That is fine, but too many times the newcomer finds himself working with strange materials, and faced with technical problems quite beyond his experience. Where shall he turn for guidance?

Many Materials and Processes to Learn About

Even with the most intelligent individual, to attempt to train him by throwing him into a maze of production equipment and materials, and hoping he will somehow blunder through to become a master in time, is too costly and slow. It requires many years of struggling before the finisher feels himself competent to handle the complex production and technical problems that a superintendent in a modern factory must face.

The answer to this problem of proper guidance is not an easy one in this modern technological world. Even with the most competent guidance, it probably will require a minimum of two years before

an alert trainee can be expected to shoulder the full load he must carry, with a minimum of outside assistance. In my cogitations on the problem, several thoughts have appeared which might point the way. There may be several others which I have not thought of, but I must start somewhere.

First of all, let us look at the candidate. I think he should be entirely inexperienced or, at most, only slightly experienced in commercial finishing. This is because, like most of us, he is likely to become somewhat hidebound in his ideas with some experience. Only the exceptional individual is able to retain the freshness and open-mindedness characteristic of the inexperienced. If you have an experienced workman who does have this attitude, then by all means give him a chance. He is rare indeed. You are fortunate if you find one.

Schools, Magazines and Books Supply Information

The only formal training I know of, that is available for commercial finishers, is conducted by one of the spray equipment manufacturers. It has to do with spray painting, and consists of an intensive one-week training. You might send your candidate to this school. It requires only a week's time away from the plant, and he will come back well trained in this phase of finishing.

The alert candidate will learn a lot from available literature on the subject. By all means subscribe to all the trade publications that deal in any way with the subject. Subscribe in the candidate's name, and see that he is the first to get each issue as it comes in. To let it trickle to him through other departments often means that he never gets it at all. If others want the magazines, take as many subscriptions as seem desirable. The extra cost is small. But don't expect that any magazine will reach the proper hands if it is subscribed to in the company's name only.

Several books, which you can obtain through INDUSTRIAL FINISHING Magazine, contain much technical and practical information on the composition and uses of industrial finishing materials.

Incidently, I might mention my own book, "Modern Organic Finishes, Their Application to Industrial Products", which may be purchased through this magazine. The book was written especially for finishing superintendents, production superintendents, and other executives in factories that use industrial finishes. It describes many materials, finishing procedures, and other matters pertinent to industrial finishing. Its main purpose is to describe modern commercial methods of finishing, with special emphasis on proper equipment and its use.

By all means get your candidate as many of these books as seem applicable. Their Bibliographies will suggest other sources of information.

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opportunity to give your candidate a two-week's intensive training in his laboratories. The free interchange of information and ideas between your candidate and the technical men in your supplier's organization will be a valuable aid in his training. Perhaps your supplier can send trained men to aid your candidate for a few days at a time in your own plant.

If you are in a locality where there are sufficient foreman finishers, why not organize a finisher's club, just like any other professional organization? It should have monthly meetings, and each firm represented should send at least one or two men to each meeting, the company footing the entire bill. It would not be difficult to get suitable men to address the meetings. The meetings should be dinner meetings, where good fellowship will aid in the exchange of non-competitive information. Trade secrets are not lost through such organizations. It is surprising how many closely guarded trade secrets are really common knowledge.

Provide Facilities in Plant for Some Experimenting

And then, within your own factory, there are certain things you can do. You should see to it that your trainee has adequate time for experimenting, for playing with finishing materials on panels. Set aside some space, and provide him with ovens, spraying equipment, and other things needed for your own finishing problems. Find some way to relieve him from production responsibilities for a few hours each week. One way would be to provide him with a production assistant who can take the responsibilities for production for a short time each week. Encourage him to make decisions as his ability grows, so that in proper time he can carry the full responsibility.

The matter of compensation is a part of the problem. You cannot expect to train and hold a good man unless his monetary compensation is adequate, and in line with the responsibility he carries. But much more important than the compensation is the feeling of importance and achievement so necessary for any competent man to remain satisfied in your organization. These inner feelings are not encouraged by "soft soap," an all too common mistake which any intelligent man will sense. They are encouraged by letting him know he is an important part of your organization, and that you confidently expect great things of him. It will certainly be worth the effort.

A paternal attitude will not help. The man in training must be made to see that your motives are inherently selfish; that is, that you are training him in order that your organization may be more efficient. He will therefore react by realizing that he stands on his own feet, not because you may like him, but because he is worthy, and for no other reason.

No man can retain his self-respect in your organization if he feels that you are giving special attention to him just because you like him, however much that may be true. If he can get the feeling of inner worthiness, he will respect himself and you more than if the feeling is on any other basis.

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REPAIRS AND TOUCH-UP WORK IN *Radio Cabinet Finishing*

What causes some of the damage that must be repaired or touched up; suggestions for reducing this "evil"; where the repairs should be made; hints on expert repairing and touch-up work on different finishes.

By F. G. SIMMONS
Superintendent of Finishing

ONE OF THE necessary evils, in the way of extra production cost, that goes along with finishing radio cabinets made of hardwoods, is repair finishing—fixing up and touching up damaged places or any imperfections that may show on the finished cabinet. Even microscopic indentations must be completely eliminated. Purchasers of radio cabinets have become more critical and are demanding near perfection in finished appearance. This year, even more than previously, a manufacturer of radio cabinets must be especially alert for this costly item, because competition is here.

Every manufacturer of radio cabinets must include the cost of repairs in his production cost. He is faced with the necessity of having trained and expert patchers at intervals along the finishing line—and since the war it has been a problem to teach anyone to do this type of work.

A Bit of Hardened Glue Dented Every Cabinet

Wood cabinets are always subject to damage in handling. Sometimes it is difficult to ascertain the cause of a particular dent or scratch or other imperfection. In a recent case, for example, a slight indentation showed up repeatedly on the left hand side of every cabinet. Upon investigation it was discovered that a spot of hardened glue had become attached to the inside of a case clamp. When pressure was set up, this bit of hardened glue pressed a dent into the face veneer. Yes, this was due to negligence on the part of the case clamp operator. It is only one instance in which neglect or complacency on the part of a workman is responsible for the need of so much inspection and costly repairing.

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Work benches and jigs should be watched for the presence of glue and small hardware that could cause damage to products in process. Operators should be warned to avoid placing tools on top of cabinets. All stock in process, throughout the factory, should be piled and handled carefully.

It has been my experience that the finishing room help is responsible for a large percentage of handling damage, regardless of the facilities available or the equipment installed for ease of handling work in process. The causes are so many that they cannot all be described here. It is up to foremen and supervisors to educate their subordinates on the need of care in handling products in process.

Carefully Selected Workers for Repair Finishing

At this time I would like to say something about the particular talents required of men who do patching, burning-in and touch-up work. I have found that the ideal time to do this work is immediately after sanding the sealer coat. The burning-in repairs can best be made on a sealer coated surface. It is also better for coloring in. Then the operator doing this work does not necessarily have to be as skillful as a patcher working at the end of the finishing line; nevertheless he does have to exercise care, use a light touch and have a good eye for color. Careful investigation among finishing room help is bound to bring forth certain individuals who have these particular talents.

Guided by their supervisor, these workers will have to be trained to disguise veneer "sand-throughs" caused by careless belt sanding. This kind of repair usually requires an opaque base or ground color to cover the cross markings of the exposed core wood; then the graining-in lines to simulate the surrounding figure, and finally a glaze to give the right color.

Bleached Finishes Hard to Match Perfectly

Bleached and harvest type colors on mahogany are especially difficult to blend in and touch up. The reason for this is chiefly because of their sheer transparency. When repairing a damaged area on one of these finished surfaces, extreme care must be exercised to avoid too much painting in. Unless one arrives at a true color match, the place will look worse than if it had been left alone. However, if the worker is patient, skill will come with experience. An ideal medium for this work is shellac and dry colors, using spirit enamel colored with dry colors to paint in mineral streaks, etc.

Bleached cabinets require great care all the way from bleaching to the final lacquer coats because of the aforesaid transparency. It is easy to finger print them and get them dirty, and if these marks are sealed over it is usually impossible to remove them. Sometimes it is necessary to wash off and rework an entire cabinet because of this condition.

Modern Technique in Repair Finishing

An article could be written entirely on the talents required of the final off-line touch-up man. To say the least, it requires years of

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experience for a man to become highly skillful in this type of work. No two repair jobs are alike. Each and every one requires a different approach, and it is only by kindred experience that one becomes an expert. The work must be done with a finality that blends with the polished cabinet, without recoating. In years past the men who did this work were known as French Polishers—at trade in itself. Today there are on the market patented almalgamators that do away with the highly complicated mixing of flake shellac, grain alcohol and linseed oil, as in French Polishing, and their use tends to cut down some of the skill required in the past.

Coming off the line, with an assist from Marie Morrell, is the 350,000th radio cabinet manufactured by Universal Moulded Products Corporation, Bristol, Virginia, since production was begun two years ago.

The most frequent job of the final touch-up man is to disguise "cut-throughs" caused from the rubbing and polishing of radio cabinets. This job calls for padding in with patent almalgamators and dry colors or analines, depending upon whether you wish to cover or color. The operator forms a linen or gauze pad to which is added the amalgamator and color that corresponds to the damaged area. Incidentally, a cabinet color will vary in different areas. This is especially true on ribbon figure, or crotch veneers, which vary from extremely light to dark.

The novice should never practice on a finished cabinet, but should work with rejects or panels. It is necessary to become familiar with the softening or "biting" character of patented amalgamators. It is also necessary to understand why they soften the finish. It would be impossible to blend dry colors or analines into a damaged area without forcing them into the lacquer film.

In many large organizations it is still customary to touch up finished cabinets by using a small spray gun; and to touch up edges with small brushes. Although spray guns have a limited use on the end of the finishing line, both of these methods are inferior to padding in with the so-called amalgamators. Where a spray gun is used, it has been found that an overspray and dusting condition will be caused which necessitates sanding and polishing over again. In using a brush it has been found that the edge touch-up "piles up" and becomes too obvious. *(Cont'd. p. 82)*

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One Factory That Boasted "No Repair Finishing"

Recently I had occasion to visit a large radio cabinet manufacturer who seemed to gloat over the extremely low cost of his radio cabinet finishing room. When questioned about his finish repair jobs and touch-up work, he remarked, "I don't have any". To me this seemed incredible, to say the least. However, on visiting his finishing room later I discovered that he had been telling the truth. "No touch-up" was right. If a console cabinet needed touching up, regardless of its size, orders were given to wash the cabinet completely down to the wood and start it in process again. This instance will serve to illustrate why trained touch-up men will always have a place in the finishing room.

In this article I have tried to give the new foreman, as well as the established cabinet manufacturer who contemplates a radio cabinet contract, some insight into the "necessary evil" of repair finishing and touch-up work. In any estimate of radio cabinet finishing, this extra work must be taken into account. You may be able to reduce the amount of repair finishing required—cut it way down—but you cannot eliminate it entirely, and still have all perfectly finished cabinets.

ON BECOMING FOREMAN—There is one point some people overlook in reference to training an inexperienced man to be foreman—and, in my opinion, this is the key to the success or failure of the entire plan. What about the prospective foreman's personality? With all of the planned intensive training, whether for a month or a year, granting that he has the ability to absorb it, he will still be a beginner as far as production finishing is concerned.

When he takes his place as foreman, his position will not be an enviable one. He will take charge of men who know the job better than he does, some of whom may feel that they should be in his shoes. This is where his personality and diplomacy will make or break him.

If he "starts off on the wrong foot," tries to assert his new-found authority too abruptly, or tries to impress old timers with his concentrated knowledge, he may stir up antagonisms which he will never be able to live down. The men can refuse to cooperate, let him make costly mistakes, let him down at every opportunity, especially if he is related to an executive of the firm.

On the other hand, if he has the personality to win their friendship, and the humility to seek their assistance; he will find the majority glad to give a helping hand. Cooperation and friendly counsel will certainly stand him in good stead during those tough months when he is really learning his job.

THE USE OF STRIPPABLE LACQUER for paint spray booths has proved a labor saver at The Glenn L. Martin Co., Baltimore, Md. The interior of the booth is first cleaned and a sufficient number of coats of the strippable coating are sprayed on. The booth is then put into service. When paint spray has accumulated on the sides of the booth so that it requires cleaning, the booth is put out of service. The lacquer film is loosened and easily stripped from the wall. This leaves a clean metal surface for recoating with strippable lacquer.

★

MOST

Western Furniture Manufacturers are Fuller customers

W. P. FULLER & CO.
Industrial Finishes Division
San Francisco 19, California

★

FOUR REASONS WHY!

RESEARCH

Fuller research and product development never rests. Three laboratories maintain Fuller leadership in the Western Furniture Field.

CONTROL

Fuller technicians thoroughly test every batch—to assure you uniform quality and maximum production line efficiency.

SERVICE

Fuller Finishes are engineered to meet your requirements—and Fuller-backed to do your job *right!*

EXPERIENCE

Whether you are an established manufacturer or new in the West, Fuller is near enough at hand to iron out your finishing problems. Fuller representatives with years of experience in the furniture and wood finishing field are located in all Western manufacturing areas.

FULLER INDUSTRIAL FINISHES

Testing Laboratories

We wish to inquire if you can give us the name of a testing laboratory that would be in position to make some tests of panels finished with materials from different lacquer manufacturers, to test the number of hot and cold cycles each of these panels can stand before the finish breaks down?

Yes, there are several. One is Crystal Laboratories (Attn: Wm. Beacham), 643 Virginia St., Crystal Lake, Ill.—ED.

Use Peelable Plastic Coating On Turntables

We disagree with the article, "Clean Turntables for Spray Booths", which appears on page 82 of June 1948 issue.

As manufacturers of "Peel-It" peelable plastic coating, we recommend its use wherever temporary protection is desired. Brushed on or sprayed on, it dries to form a non-combustible film which may be easily peeled off later when covered with overspray. There is no need to cut and fit paper or cardboard for the turntable or its pedestal. The saving in time alone will more than pay for the peelable coating used.—Harco Chemical Co.

Material Touch-up for Baked White Enamel

We manufacture consumer products on which we bake a high grade white synthetic enamel. At the present time we are searching for a quick method and durable material for field touch-up and repair.

Several large paint companies are working with us on the problem, but to date only fast-drying lacquers have been obtained. These are not satisfactory because, after aging, the lacquers turn yellow. Isn't there a fast air-dry enamel which would be more durable and suitable for this purpose? What is commonly used by appliance manufacturers for field touch-up? Any recommendations will be greatly appreciated.—E.W.

Your supplier of finishing materials should be in position to furnish a suitable air-drying material for necessary touch-up and repair work on the final finish. Also, there are touch-up and repair white enamels of the baking type that can be applied and then baked with one or more portable banks of infra-red heat lamps.

In a letter to you we are naming several manufacturers, one or more of whom may be able to supply exactly what you want. In the meantime the Editor would like to hear from concerns or individuals in reference to this problem.—ED.

Where to Get "Banox"

We read the article about "Cleaning, Rustproofing and Painting Parts for Outdoor Metal Furniture", as published in May 1948 issue, and are interested in the chemical you mention as "Banox". We would like as much information on this as possible. Will you be kind enough to send us the name of the manufacturer, so that we can write them directly?—S.M.

In the May 1948 issue of "Industrial Finishing," there appeared an article . . . in which there was mentioned a rust-proofing compound named "Banox". We would appreciate your sending to us any information you may have as to the name of the manufacturer or local representatives of "Banox" in this area.—A.U.Co. (Los Angeles).

"Banox" is a product of Calgon, Inc., Pittsburgh, Penna.—ED.

"Wrinkle Finishes" Article

We note in "Letters from Readers", page 103, of April 1948 issue, reference to a feature article which appeared in December 1946 issue entitled, "Preparation, Spraying and Baking of Wrinkle Finishes", by G. A. Conrad. Inasmuch as we were not subscribers to "Industrial Finishing" at that time, we do not have this article in our files. If possible, will you kindly send us a copy of the December 1946 issue?—C.J.Co.

Copy of issue sent.—ED.

Can Supply Plastic Finish for Bowling Pins

It has come to our attention that you published (in April 1948 issue, page 100) a letter from M. G. Wright, Hartford, Conn., in which he requested names of manufacturers who make or sell a plastic finish or dressing for bowling pins. In your answer you mentioned that you were

You can produce on any material the following surface finishes:

FELT - SUEDE LEATHER - MOHAIR VELOUR - VELVET - CARPET

FUNCTIONAL USES

Used in the auto, airplane, radio, electrical, phonograph, ceramics, furniture and many other industries for surfacing all sorts of materials to provide

TEMPERATURE INSULATION • SOUND DEADENING • INTEGRAL GASKETS • SHOCK ABSORBING SURFACE • NON-MAR SURFACE • NON-GLARE SURFACE

DECORATIVE USES

Applied in various lengths and colors to wood, paper, cloth, metal, etc., the following effects are produced—

FURNITURE UPHOLSTERY • SUEDE LEATHER • INTERIOR AND DRAPERY FABRICS • VELVET • VELOUR • MOHAIR • CARPET

with these patented and trademarked Rayco specialties:

FELT AND SUEDE SURFACE

*"Raymix"—a flock of rayon fibres, trademarked under U. S. Patent No. 427949 to produce a suede effect of utmost realism on any surface.

*"Kingcote"—a cotton flock trademarked under U. S. Patent No. 423572, producing a suede effect at minimum cost.

MOHAIR, VELOUR AND VELVET SURFACE

"Raycote"—a flock composed of uniformly cut rayon fibres to produce on any surface a pile effect such as velvet, plush, or velour. Made under U. S. Patent No. 2014947.

SYNTHETIC CARPET

"Harecote"—a flock composed of animal fibres, produces a durable carpet or rug material.

Request Free Color Card of Actual Samples

Rayon Processing Co. of R. I., Inc.* **Registered Trademark*

PIONEER PRODUCERS OF SURFACE COATING FLOCKS

55 Moshassuck Street **Pawtucket, R. I.**

POLLAK PAINT CO. 715 Main St. Buffalo, N. Y.	LAMBERT-NEW ENGLAND CO. 79 Sudbury St. Boston, Mass.	H. R. MEININGER CO. 409 16th St. Denver, Colorado	J. GORDON SMITH CO. 3901 Main St. Dallas, Texas

supplying him a list of concerns, although you were not sure of their ability to supply this material.

We would appreciate it if you would add our name to this list of suppliers of plastic finishes for bowling pins.—Pierce & Stevens, Inc.

Flock Finishes

We are interested principally in flock finishes at the present time, and if there are any articles available from previous issues, we would appreciate copies. We have on hand an article from the March 1947 issue. The article was written by Mr. J. Donald Bostrom and is titled, "Flock Finishing in a Custom Shop".

In that article, the writer refers also to a previous article, of un-named title and date, in which he described "the use of alkyd resin adhesives for pre-coating the backing paper for frameless, glass pictures, and for attaching the coated backing paper to the reverse side of the glass". If there is any possibility of obtaining this article too, we would appreciate it.—G.S.Co.

The article appeared in Feb. 1947 issue under the title, "Screen Printing and Flocking in a Custom Shop", starting on page 80. Tear sheets of this article and another one are being sent to you.—ED.

Repair Putty for Nail Holes

We manufacture trailer coaches and have been experiencing difficulty in finding a suitable putty to use in the nail holes on our jobs. We have tried glazer's putty, but even by blending in whiting and yellow ochre, we have not been able to produce the desired effect. The type of wood involved is Ponderosa pine. We have also tried a product called "Wood Repair", which comes in various colors. However, we find that this material is too difficult to apply on a production basis.

We are wondering if you can give us the name of a company that makes a material such as we need? It should have the consistency of glazer's putty and should be of a Ponderosa pine color.—L. L. Co.

In a letter we are submitting names of several firms who, we understand, have something suitable for your purpose.—ED.

What Heats "Hot Lacquer?"

In reading May 1948 issue of "Industrial Finishing," we notice the article about "High Solids Lacquers" by Dr. S. P. Wilson.

We have a particular problem on heating varnish in order that we might maintain a uniform viscosity and eliminate orange peel if this is possible.

We wonder if Dr. Wilson would have any particular remarks to make about this phase of finishing, and whether you can put us in touch with someone who might be able to give us some help on the problem of pre-heating our pressure tank before spraying this varnish material?

We use a 60-gallon pressure tank, and have no steam available for heating. It must all be done electrically.—R.W.A.

For heating lacquer, varnish or enamels before spraying same, we refer you to two firms whose full-page advertisements appear in that same May 1948 issue, see pages 5 and 35.—ED.

Fluorescent Pigments

In May 1948 issue we read a paragraph in "Random Comment" about fluorescent pigments. Could you give us details as to where to obtain them and also, if possible, the suggested use with paints, for outdoor and indoor advertising in sign painting?—Andres Lugo-Vina, Inc., San Juan, Puetro Rico.

We understand that you can obtain fluorescent pigments from The New Jersey Zinc Co., 160 Front St., New York 7, N. Y.—ED.

Finishing Fishing Lures

It is our understanding that in a recent issue of your magazine (April or May) there appeared an article about the finishing of artificial fishing lures. We are interested in getting information on the various methods used in finishing lures and we are wondering if it is possible to get a copy of your publication to which we have referred.

If you know of any other sources of information on the finishing of artificial lures we would be very glad to know of them.—San Diego Lure Co.

In a letter we are sending you tear sheets of the article "Finishing Fish Bait", published in May 1948 issue of "Industrial Finishing."

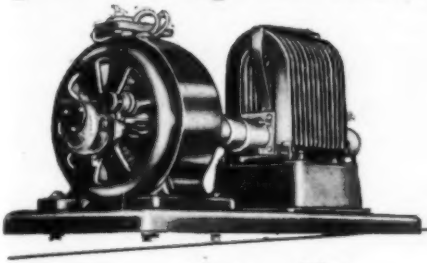
While authorship of this illustrated feature article is credited to Mr. Charles Helin of Helin Tackle Co., Detroit, Mich., it was really prepared and written by our own traveling field editor, Mr. P. C. Bardin.—ED.

Testing Paints and Lacquers

We would like to have means of testing the quality of paints and lacquers we are using. Are there manufacturers who make equipment or devices for these tests? Or could you give us ideas on how to make such devices?

The most important things we would like to know about the paints we use is their covering power and their resistance

This motor is over 25 yrs. old, yet shiny as new - thanks to



HILO

BLACK BAKING JAPAN

Holtzer-Cabot

Division of KIDDE INDUSTRIAL CORPORATION

BOSTON 16, MASS.

June 3, 1948

Hilo Varnish Company
42-60 Stewart Avenue
Brooklyn 6, New York

Attention: Mr. Carl J. Salamon

Gentlemen:

In our Repair Service Department where motors are repaired or rebuilt for customers after field service, we are able to compare finishes which have been subjected to unfavorable tests of a wide variety of service over a great many years.

We have always given the same careful attention to the finish of Holtzer-Cabot motors as we give to the windings. We use your Black Baking Japan. We are jealous of our reputation as builders of custom-made motors and generators for special applications over the past 73 years. Finishes are continually tested in our laboratory and in our factory for resistance to all hazards to which motors may be subjected; that is, oil, salt spray, high ambient temperatures, degreasing solutions, sprits temperature changes, and weather.

We have sent you a photograph of a machine received to be rebuilt, which our records show was shipped 28 years ago. After removal of carbon grease and grime from this old timer, the finish shone up so glossy and new as if just painted.

We feel justified in spending time and money to safeguard the quality of our finishes. We are glad to inform you, our supplier of finishes, of the performance of your products.

Very truly yours,

Joseph K. Rose

J. K. Rose
Chief Estimate Engineer

JKR:MF

What better proof of service than this letter from a 73-year-old house of custom-made motors and generators?

Send for Hilo Bulletin No. 1 and a trial lot of

HILO BLACK BAKING JAPAN

for a test in your plant.

HILO

HILO VARNISH CORPORATION

42-60 STEWART AVENUE, BROOKLYN 6, NEW YORK

2420 Washburne Ave., Chicago 8, Ill.—Park Sq. Bldg., Boston 16, Mass.

to wear and scratch.—Ateliers de Construction, Anvers, Belgium.

We refer you to Henry A. Gardner Laboratory, 4723 Elm St., Bethesda 14, Md. This organization has a tremendous amount of information on the subject about which you are asking—and has published a very large illustrated book about paint testing equipment, methods, etc. We suggest you write them.

For testing the resistance of paint films to wear and scratch, a machine is manufactured by Taber Instrument Corp., 113 Goundry St., No. Tonawanda, N.Y.—ED.

Industrial Metal Finishing

We are interested in obtaining copies of any comprehensive articles dealing with industrial metal finishing. We find that there is great confusion existing concerning the recommended applications and uses for:

1) Lacquers
2) Enamels (Air dry & baking)
3) Varnishes
4) Synthetic Finishes
5) Silicone Finishes
6) Lacquer Enamels

Another confusing point is the recommended use and application of the many types of primers in existance:

1) Zinc Chromate
2) Lead Chromate
3) Zinc Oxide
4) Iron Oxide
5) Red Lead
6) Nitrocellulose
7) Synthetic

Any information or references you may be able to supply will be greatly appreciated.—F.I.

An intelligent answer to your question calls for something more than can be written in a letter. All of the materials you have named could be applied by spraying, dipping, roller coating, flow coating, brushng, etc. Method of application depends upon the part or article to be coated, its shape, size and other characteristics; various shop conditions; the quantity to be coated, etc.

One way to get a quick picture of various methods of application and uses for materials mentioned, would be to refer to R. H. Wampler's excellent book, "Modern Organic Finishes", which we have for sale at $8.50 per copy. The author of this book is well versed with all methods of finishing and all of the various finishing materials—and all of this information is included in his excellent new book.—ED.

To Hold Color Uniformity

We note with interest the article entitled, "To Keep Uniform Colors", as published on page 96 of June 1948 issue, regarding the uniformity of enamel colors. It so happens that we had an identical problem presented to us by one of our juvenile furniture manufacturers who was particularly exacting on color uniformity, because his customers wanted to purchase fill-in items at later dates and the colors had to match to avoid complaints.

We solved this problem by having a set of porcelain panels made, which our customer approved for color. We then gave the customer one of these panels and turned one over to our Control Laboratory, asking that each of them check against the porcelain standard in north skylight.

Our experience is that porcelain panels hold their color over long periods of time. —R.V.Co.

Glidden Technical Service Men

Three of the Glidden Co.'s technical service directors whose pictures appear herewith, are C. O. Hutchinson in the Chicago, Ill. area, Howard P. Wertman of Reading, Penna., and Charles M. Dunn in Cleveland.

Mr. Hutchinson, an Ordnance Department captain during the war, was in charge of protective coatings for ammunition. He is author of many specifications for paints, varnishes, lacquers, metal preparations and related products. He is a member of the American Chemical Society, American Society of Corrosion Engineers, American Ordnance Association and a registered professional engineer in the state of Illinois.

His staff of highly trained finishing

C. O. Hutchinson (at right)

Charles M. Dunn (lower left)

H. P. Wertman (lower right)

BRING OUT THE TRUE BEAUTY OF THE WOOD

S-Y Stains and Fillers emphasize clearness of tone. Do not cloud. Do not hide the true beauty of the grain.

Fillers for every wood finishing need.

Stains of every type—

Perma
Oil Pigment
Lacquer Shading
Penetrating

Our service can be helpful to you on any wood finishing problem.

Phone—write—or wire.

STILLE-YOUNG

Manufacturers · LACQUERS · FILLERS
STAINS · ENAMELS · PAINTS · *Chicago 14*

Tailor-Made

Our long list of standard items may contain **exactly** what you require. But if not, we'll formulate it for **your special process.**

experts, besides acting as the clearing house for all industrial organic finishing information, has achieved success in helping customers obtain the proper finishing lay-outs, proper finishing methods and proper finishing material to produce quality finished products at low cost in such fields as household appliances, electrical, furniture, automotive and others.

Mr. R. R. Abernathy, not shown here, is Technical Service Director at San Francisco, Calif.

These executives exchange records of accumulated knowledge and experience among themselves, in their various localities, and make them available to all of Glidden's Industrial Divisions located throughout this country and Canada.

Thus these departments offer industrial finishers a well-rounded service, including complete information on plant lay-out, cleaning procedures, finishing equipment and materials, paint production control and testing methods.

S. P. Mitchell, New Supt. at The Clinton Co.

Mr. Stephen P. Mitchell has been appointed factory superintendent at The Clinton Co., manufacturer of finishing materials in Chicago. Mr. Mitchell recently resigned as technical director of another Chicago firm that manufactures and sells finishing materials, to accept a position as superintendent of Clinton Co.

S. P. Mitchell appointed factory superintendent for The Clinton Co.

Mr. Mitchell received his B. S. degree from Franklin and Marshall College. He spent 1½ years as research chemist for a chemical company in Philadelphia, Penna. In 1937 he accepted a position as part-time instructor at Northwestern University and, while teaching at Northwestern, he obtained his M. S. degree. He subsequently spent one year as a chemical engineer with the U. S. Gypsum Co., and six years as research chemical engineer with a large finishing materials manufacturer in Cleveland, Ohio.

R. J. Nadherny Becomes an Executive in Design Firm

Barnes & Reinecke, Inc., Chicago, announces that its Board of Directors has elected Russell J. Nadherny to Executive Vice President and Director of Engineering and Production. Mr. Nadherny has been associated with the firm as chief engineer. Previously, he held important positions with two other firms.

R. J. Nadherny is advanced in the firm of Barnes & Reinecke

In his new position, Mr. Nadherny will be responsible for the coordination of all Barnes & Reinecke design and engineering services. Nadherny is a Cornell University mechanical engineering graduate and member of A.S.M.E. and A.S.M.

Egyptian Augments Sales Force

Mr. Philip Beach, assistant director of sales for the Egyptian Lacquer Mfg. Co., announces the appointment of Mr. John L. Mand as a sales representative to help coordinate service in the eastern New York and Vermont areas.

Further revision moves two veteran Egyptian men into the field. Mr. John B. Bricker is supplementing the present sales staff in the Chicago district. Mr. Jack Maiool has been appointed Special Sales Representative in Metropolitan New York.

Ferro Enamel Corporation Promotes Two

Ferro Enamel Corp., Cleveland, Ohio, manufacturers and engineers in the ceramic and finishing fields, announces the promotion of two company members effective June 1, 1948.

G. L. (Gene) Bruton has been appointed Assistant Sales Manager of Ferro Enamel Corp. Glenn A. Hutt is General Sales Manager. The other promotion went to E. C. (Eddie) Davidson, who was named Manager, the Northern & Central Ohio, Western Pennsylvania and Northern West Virginia territory of the firm.

NO! You're not "Seeing Double" — but

YOU SAVE MONEY 2 WAYS *when you use*

S-I-P THINNERS!

1 S-I-P Thinners *cost less,* grade for grade. You get higher quality at a cash saving.

2 S-I-P Thinners work easier, go farther, give your finishes maximum mileage.

Try S-I-P Thinners FREE

- ☐ **LT-2725:** A good all-around, low-priced lacquer thinner.
- ☐ **LT-2726:** A better general purpose thinner in the medium price range.
- ☐ **LT-2727:** This is an excellent reducer, specially made for automotive and furniture lacquers.
- ☐ **LT-2728:** For use where blushing is normally encountered; gives maximum lacquer flow-out.
- ☐ **LT-2729:** Top quality retarder, used when necessary to eliminate blushing.

CHECK, CLIP and MAIL this ad for FREE TRIAL

FREE Samples

You may have free testing samples of any of the above Thinners, without cost or obligation. Simply check the ones that interest you, attach this ad to your letterhead, and mail it to us today.

STANDARD INDUSTRIAL PRODUCTS, inc.

EVANSVILLE INDIANA

Wear Master

THINNERS LACQUERS SEALERS STAINS VARNISHES POLISHES

Finishing Fish Bait

We wish to inquire if you can direct us to a source of information on dipping wooden fishing plugs. Any information you can supply will be appreciated.—K.Co.

Much depends upon the degree of quality you wish to attain. You should keep in mind the first law of quality dipping, namely, that the rate of speed the object is dipped into the coating material is of little consequence, but the rate of speed at which it is withdrawn from the material determines the thickness of film and quality of finish.

For continuously uniform results, do not attempt hand dipping. Far better results will be obtained through the use of either mechanical or hydraulic means of withdrawing plugs (mounted on suitable wire holders) from the finishing material. The mechanical or hydraulic mechanism should have a convenient means of speed control, as it is impossible to prescribe a definite speed which will apply under any and all conditions.

The speed of withdrawal should equal the flow of material off the object being withdrawn. You can readily see where this speed could not be constant, due to the changing viscosity of the material through evaporation of the solvents in an open container. Temperature and relative humidity will also affect the operation. The design and construction of a mechanical or hydraulic mechanism, plug holders, racks, etc., will depend upon the size of operation, and the volume of production.

As for wooden plugs or lures, it is suggested you place them in covered wire baskets and immerse them in a special waterproofing oil. One firm that advertises in this magazine makes such an oil. It is marketed under the name of "Lion Oil." Perhaps other firms make a similar oil. Plugs should remain in this oil for 24 hours to thoroughly waterproof the wood. Then they should air dry for 48 hours. If the wood surface is oily, finish coats will not adhere to it. When dry, the oil-treated plugs should be dipped in a red oxide metal primer. Then they can be either air dried or force dried in a room heated to 95° to 100° F., with air circulated and a small percent exhausted outside the building. Next follows a coat of clear lacquer.

From this point on, the type of lure you wish to produce will determine the finishing procedure. Some finishers dip a color coat of lacquer-base material; then, after this coating is dry, they apply color markings with a spray gun, using masks, cheesecloth or mosquito net to get the desired effects. After the color markings are dry, two final coats of clear lacquer are dipped, allowing suitable drying time after each coat.

Going back to the clear lacquer coat mentioned previously (before the color coat), if you wish to produce a realistic lure which resembles a fish, say a minnow, a coot of white lacquer should be applied and dried, followed by a dip coat of pearl essence. When pearl essense is dry, color markings are applied, dried and then two final coats of clear lacquer

LET US SOLVE YOUR PROBLEMS IN METAL AND WOOD PRODUCTS FINISHING

Our staff of specialized Laboratory Technicians have had over 40 years of experience—which is at your disposal. No problem is too small—none too big—for their enthusiastic cooperation.

They are familiar with and experienced in all finishing techniques—and are anxious to be of service.

Inquire without obligation.

The Gilbert Spruance Company

RICHMOND AND TIOGA STS. PHILADELPHIA 34, PENNA.

follow. There is no substitute for pearl essence to give lasting results and to produce a lure that has the color and sheen of a real fish.

There are some substitutes for pearl essense, but they have a tendency to turn yellow when subjected to water over a period of time. Also, if pearl essence is used, it can only be applied over a white coat (not clear) to produce a realistic effect. It should be remembered too that none of the coats should be thick. A multiplicity of thin coots is always superior to a few heavy coats. This applies not only to finishing fish bait, but to finishing any product, regardless of the method of application. —C.B.

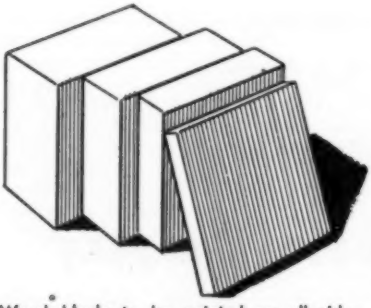
How Would You Paint These Small Blocks

We are seeking information on equipment suitable for the mass painting of small wooden blocks. These blocks are 1¾ x 1¾-in. square and in thickness of ¼, ½, ¾-in. and 1-in.

At present we are attempting to spray these blocks but we have found that this method is unsatisfactory from a production standpoint.

If you have any ideas on how this paint job can be accomplished, we would appreciate hearing from you.

We might add that we have attempted to dip these blocks, but are unable to eliminate the drop of paint that accumulates on the tip of each block—on the low edge or corner as the dipped blocks hang while the paint sets and becomes dry.—E.J.Co.



Wood blocks to be painted on all sides.

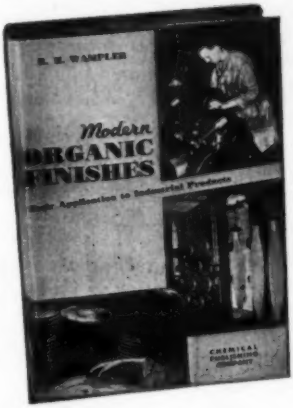
When you state that spraying is too slow and that dipping forms an edge, it sounds to me as if you are trying to spray the blocks singly or dip them by hand. Frankly, there are no other methods which are either practical or economical. Basket dipping or whirling are out of the question because the blocks would face together.

With a dipping machine of parallel-bar type, using properly formulated materials and carefully controlled withdrawal, no tear-drop or fat edge should develop. Of course, wire jigs would be required to hold several blocks from each bar and the jig would leave a small mark on the finish, but this method would be the cheapest from a man-power point of view.

My own method would be spraying. I would have as many helpers (preferably women) as necessary, spacing the blocks on large, light, wire trays, so that the tops and sides could be caught with the first spraying. The sprayer would work at two turntables, merely stepping from one to the other. All carrying would be done by the helpers and the sprayed trays of blocks would be placed on trucks to dry.

At the proper time intervals (when the first spraying of paint had become dry) the helpers would turn the blocks so the unfinished side of each one faced up. Then they should be pushed closely together so that the painted edges will protect each other. A fast way to turn them is to place two or three trays on top of each

MODERN ORGANIC FINISHES



Their application to Industrial Products

This book is brand new and contains 452 pages of the latest information on finishing. It describes modern finishing materials and equipment for their application, drying, conveying, etc., so that the reader may have an overall picture of modern industrial applications. Throughout, the main emphasis is on proper selection and use of materials to get the best possible finish at minimum cost.

Contents

MATERIALS: Oleoresinous and Alkyd Varnishes and Enamels; Cellulose Lacquers; Spirit Varnishes, High Integrity and Specialty Finishes; Stains, Wood and Metal Fillers, and Miscellaneous Finishing Materials.

MODERN APPLICATION METHODS:
Spray Painting; Dipping and Flocoating; Roller and Knife Coating; Tumble and Centrifugal Finishing; Special Processes.

DRYING METHODS:
The Drying Process—Air Drying; Force Drying; Baking by Convection and Radiant Heat; High-Frequency Baking.

PRODUCT HANDLING IN THE FINISHING DEPARTMENT:
Conveying Methods.

FINISHING PROCESSES:
Wooden Furniture and Cabinet Finishing; Prefinishing Wood, Plywood and Hardboard Structural Materials; Special Industrial Wood Finishing Problems; Finishing Paper, Cardboard and Fabrics; Finishing Plastics and Resin-Impregnated Wood; Cleaning and Surface-Treating Metals; Finishing Automotive and Railway Equipment; Finishing Sheet Steel Products; Finishing Iron Castings; Finishing Aircraft; Rubbing and Polishing Organic Finishes.

SOME GENERAL CONSIDERATIONS:
Good Practice in the Finishing Department; Testing and Evaluating Finishes.

The price is $8.50 and to eliminate bookkeeping we ask that cash accompany order. Sold on a money-back guarantee. Money refunded promptly and without any questions if you are not satisfied.

INDUSTRIAL FINISHING Magazine

1142 North Meridian Street **Indianapolis 4, Ind.**

other, cap the pile with a spare tray, and turn the pile. This group is then sprayed as one panel, being careful not to flood the material into the edges. Even a poor sprayer should do a thousand an hour.

The sprayer should use a pressure pot. I believe I would try an internal mix gun, with as little air-pressure at the gun as possible, and a wide fan nozzle. This would minimize blowing the blocks around on the first spraying. If blowing persisted, boards can be substituted for the wire trays. Secure several rows of masking tape to the boards, with the tacky side up, and space the blocks on the tapes. Several sets of blocks can be sprayed before it is necessary to renew the tapes. For the second spraying, they will go on wire trays.

My material would be a quality lacquer with plenty of covering power. This is cheaper than a low-priced material that requires several coats. I am assuming that the blocks are well sanded and that no suction occurs where they are cut across the grain. Sometimes a company, wishing to produce a low-priced article, uses the cheapest wood and materials obtainable. This mistake results in finishing costs that wipe out all savings, and it produces a job which is usually disappointing.—GEORGE CONRAD.

Service for Small Finishers

Gaston Finishes, P. O. Box 446, Bloomington, Ind., is a newly organized firm that supplies materials in small quantities and furnishes complete detailed step-by-step information about the finishing of different woods with various fine finishes.

With each sheet of detailed directions for a finishing procedure, starting from the bare wood, a 1-in. wide by 7½-in. long sample panel is supplied. Along the length of this panel (bare at one end) are shown results of the various coatings used, such as a stain, sealer coat, intermediate coats, final coat. The company publishes a catalog of its products—a 20-page booklet—copies of which will be sent free to those interested.

Mixing Equipment Co. Has New Fabricating Plant

The Mixing Equipment Co., Rochester, N. Y., has recently installed its entire manufacturing operation into a modern new plant located in the outskirts of the city. The company manufactures all types of mixing and agitation equipment. The new plant is a one story structure designed for maximum efficiency in material flow, fabrication and assembly.

The former plant will be used exclusively for research and engineering. The company has pioneered in the field of agitation development and research and plans to place even more emphasis than before on this phase of its operations.

T. L. Dowling Promoted by W. P. Fuller & Co.

Thomas Lawrence Dowling has been appointed Southern California District Sales Manager of W. P. Fuller & Co., succeeding the late M. G. McKinlay.

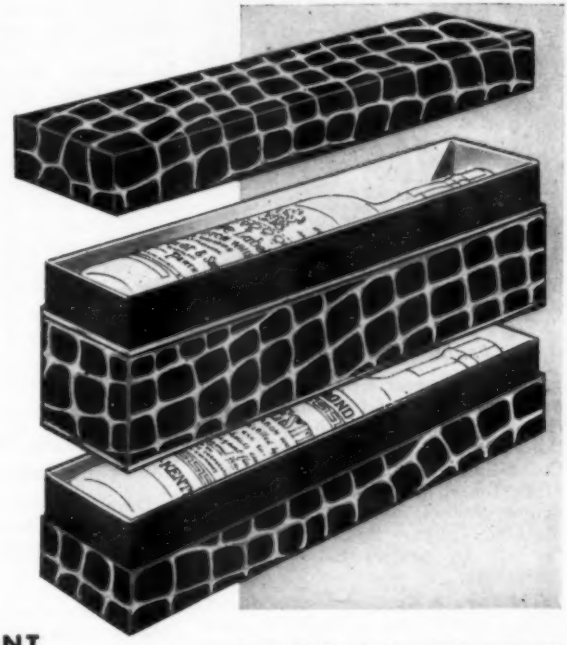
T. L. Dowling, now Southern California District Sales Mgr. of W. P. Fuller & Co.

Mr. Dowling, who has been manager of the Fuller's Stockton, Calif. branch, began his business career with this pioneer paint, glass and wallpaper firm, as a clerk in the Glass Department of the Oakland, Calif. branch in 1917.

Working his way up in the company to Paint Sales Manager in Oakland in nine years, he stayed there until he was promoted to managership of the San Jose, Calif. branch in 1936. He became Paint Sales Manager in Seattle in 1944, and went on from there to manage the Stockton branch.

Succeeding him in Stockton is I. W. Tabler, who has been Paint Sales Manager of the Fuller San Diego branch for the past two years.

James P. Fraser, formerly assistant to aircraft and ship-building sales and service, takes Mr. Tabler's place as Paint Sales Manager in San Diego.



CLAREMONT

FLOCK

Liquor Gift Box Package. Designed to hold one or two bottles of spirits. Flocked-paper covering creates a rich, luxurious effect — inexpensively!

Equal to the Spirit of Any Occasion!

Write today for color charts, samples, details and names of Flock finishers.

Box papers, luxuriously surfaced with richly colorful flock and embossed in a selection of custom-simulated patterns, are carried as roll or sheet stock by the better quality paper merchants. Upon investigation, you'll find too, that their best quality velvetized offerings are processed with CLAREMONT Flock! Claremont Flock is uniform, responds to adhesive preparation and forms a deep-pile foundation that won't fuzz, separate or rub off! Can be applied to any rigid surface. Used industrially for insulating and soundproofing. Check this medium!

Claremont Flock . . . Ammunition for the Imagination!

CLAREMONT *The Country's Largest Manufacturer of Flock*

WASTE MFG. CO.
CLAREMONT
NEW HAMPSHIRE

Automobile Polishes

Two new products for use with automobile rubbing and polishing machines are now being marketed by the Finishes Division of the Du Pont Co., Wilmington, Dela. They are VZ-1196 "Duco" Machine Polishing Compound No. 14, and VZ-1202 Liquid Machine Polish. Both are designed for use by professional automobile refinishers.

The No. 14 compound cuts faster, is less greasy and is easier to clean up than previous Du Pont products of a similar nature. It is scientifically prepared to impart a high luster to "Duco" and other lacquer surfaces.

The Liquid Machine Polish was developed to supply a satisfactory polish for use with standard polishing discs or lambs wool bonnets. It cleans and polishes quickly and will not mat the buffer.

Portable Drum Truck

A new portable drum truck that will smoothly and safely rotate a 30 or 55-gallon steel drum by a small electric motor is now available.

The "Rotator" will revolve a maximum drum load up to 500-lbs. at speeds up to 50-rpm. with a ½-hp. motor. Swivel casters, retractable by foot lever, are at front end to make steering easy, and the retractable feature prevents slippage of the truck in loading. An extension nose piece at front end makes loading and unloading of the drum easy, quick and safe without the use of a crane hoist.

Complete drainage of the drum can be made from front or bottom. One side of the truck frame is open to allow a pail or other container to be set on the floor underneath the drum for drainage.

The "Rotator" is a product of the Morse Mfg. Co., Inc., Syracuse, N. Y., pioneer designers and manufacturers of drum, barrel and carboy handling equipment and accessories.

"Liqui-Plate," Baked Aluminum Mono-Lacquer

Development and production of a new and different baked aluminum mono-lacquer, designated "Liqui-Plate," is announced by the Multi-Coat Corp., 20 Bedford Glenns Road, Bedford, Ohio. This liquid finish is the closest approach in paint to certain types of metallic plating intended for severe corrosion-resistant service.

"Liqui-Plate" is expected to have almost limitless application where an economical, bright, durable, protective finish is desired. This versatile paint can be applied to any clean ferrous surface, whether or not it has been treated previously with a phosphate coating.

In carefully conducted tests, "Liqui-Plate" has remained stable for longer periods of time, with high leafing retention.

Important time-saving feature is the ease of application. Spray or dip methods can be used, also flow-coating and roller coating. When sprayed or dipped, the paint should be reduced 10% with xylol, toluol, or lacquer thinner. Both flow-coating and

A SUPERLATIVE SYNTHETIC VARNISH

ARNO TONE

PROT-O-CEL

TESTED

PROT-O-CEL is a synthetic varnish specially formulated for wood finishing. Its use in your finishing operations will save time, labor, material, and reduce production costs one-third.

Here are some facts about PROT-O-CEL established from recent tests made by a recognized testing laboratory: PROT-O-CEL has the high base of a varnish, dries as fast as a lacquer but has a 50% higher solids content; it levels off readily, displays fullness, good coverage, and great adhesion. PROT-O-CEL is not affected by water, alcohol, and ACETONE. It has high cold check resistance, great resistance to blushing and impact, and a high flash point.

We invite you to make a test for yourself. You may find that PROT-O-CEL is the solution to your finishing problems. Ask us to send you, for trial, one 5-gallon can of PROT-O-CEL AR-100 and PROT-O-CEL REDUCER XX-100 at the drum price, subject to return for full credit if it does not live up to our claims.

HIGH RESISTANCE TO

- BLUSHING
- COLD CHECKING
- IMPACT
- ACETONE
- ALCOHOL

Manufactured by

ARNY CHEMICAL CORPORATION

INDUSTRIAL DIVISION

55 WEST 42nd STREET NEW YORK 18, N. Y.

ARNO TONE

roller-coating are accomplished without reduction.

Manufacturers can make variations of this aluminum paint to fit any special temperature or time cycle, whether baking is by infra-red or by gas-fired ovens. Prospective users should inform manufacturers as to method of application, temperatures and types of ovens to be used, and hanging time before coating is heat processed.

"Solflo" Lacquer Thinner

Solflo, a new time-saving chemical product designed to bring out a high gloss from automobile lacquers with less rubbing than usual, is now being produced by the Finishes Division of the Du Pont Co., Wilmington, Dela.

For the best results, Solflo should be added only to the last color coat of thinned "Duco" nitrocellulose lacquer.

Made especially for the refinish trade, Solflo is designed to provide "blush" resistance, maximum gloss, and good flow. Blushing is the formation of a milky appearance in lacquer films which usually occurs when the humidity is high. Extensive experience has shown that, when used as recommended, Solflo will eliminate all blushing troubles except under unusual atmospheric conditions.

Solflo may also be used with a thinner for better blending of a spot repair job or a mist coat on a complete car finish.

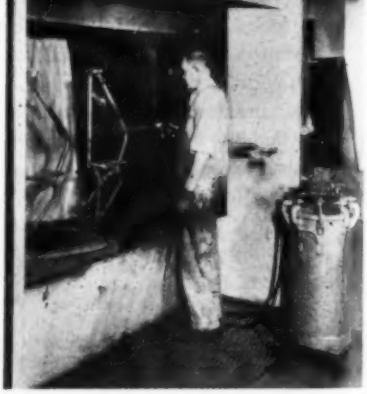
Water-Wash Spray Booth

Latest development by the Despatch Oven Co., 8th St. and 7th Ave. S. E., Minneapolis 14, Minn., is a water-wash spray booth of new design that removes and cleans paint laden air with maximum efficiency and minimum maintenance.

The design differs first at the front water curtain, which is one of at least five through which the air must travel before it is exhausted. The front curtain slopes only slightly to permit 56 gallons of water per minute to pass down each foot of the length of the curtain without splashing. The header supplying this flow and the two others inside the eliminator section are individually controlled so that the volume can be varied to meet demands.

Powerful axial flow fans provide a minimum of 150-cu. ft. per minute per square foot face velocity of air for removal of overspray. The air passes up through a minimum of five water curtains before it is exhausted.

Two headers extending horizontally through the eliminator section have a series of orifices along the top. These orifices shoot the water against a razor sharp divider plate which forms two curtains of water. These curtains are made doubly effective by baffles which throw the water back



A new Despatch water-wash spray booth.

Winsome

As the picture on this page gives you pleasure — so, too, will you get a great deal of pleasure using our finishing materials on your product.

Coatings conceived in our Creative Studio are easily and economically applied. They give desired results because they are tailor-made to emphasize the beauty and quality of your merchandise through richness of color tone and texture.

Certainly you will want to apply a *special finish* on your product...especially when it costs you no more than the ready-made, always-in-stock coatings that are used so promiscuously. Send us a sample of your product along with specifications. We will gladly prepare an individualistic finish for you at no cost or obligation.

No Tampering with Quality

ROCKFORD VARNISH *Company*
ROCKFORD ILLINOIS

Manufacturers of Protective and Decorative Coatings

across the air passage, creating another curtain. Then moisture-eliminating baffles remove excess moisture before the air is exhausted. Paint particles are scrubbed so effectively, that no paint builds up on the interior of the booth, even after months of heavy operation.

The settling tank of the booth allows the washed out paint to accumulate for easy reclaiming. Eliminating sludge dams and screens operate so effectively that no paint goes back through the system to clog the pump or the orifices in the headers.

Despatch Bulletin No. 66 gives more explicit details of these booths and copies are available upon request.

Flock Spray Gun

A light-weight, all purpose spray gun that can be used for both flocking and sand-blasting has been developed by Warren E. Porter of the Blasto Spray Gun Mfg. Co., 7007 Haas St., Los Angeles, Calif.

Sprays flock or sand from Mason jar.

Designed to operate off small air compressors, the gun uses only 3-cu. ft. of air per minute at 30-lbs. of air pressure. A specially designed, low pressure, high velocity head that is suitable for both flocking and sand-blasting is standard equipment.

A non-bleeder type of spray gun, the air pressure is checked in the handle, but it can be worked as a bleeder type by removing the trigger valve assembly which permits air to pass through the trigger hole when the gun is not in use. While Blasto Spray Gun is a syphon-type gun, no air pressure is forced into the glass jar. Standard Mason jars are used.

The gun is constructed of solid aluminum alloy casting, precision machined, heavy brass fittings and chrome molybdenum heat-treated high velocity sand nozzle and air jet.

Oven Developed for Curing Vinosol Coatings

Research and development on a co-operative basis between American Resinous Chemicals Corp. and Gehnrich & Gehnrich, Inc., has resulted in a practical fusion oven for use in curing Vinosol (organosol) coatings. Announcement of the oven came following several years of work on the part of chemists and engineers from the two companies. Lack of proper fusing equipment has discouraged the use of Vinosols which are so economical and durable.

A standard convection unit has been developed having overall dimensions of approximately 10-ft. in width, 10-ft. in height and 17-ft. in length and accommodating a web travel of 35-ft. In general, production speeds of 30 to 90-ft. per minute can be obtained, depending upon the thickness of fabric coating to be fused.

The oven is of standard insulated steel panel construction and is sup-

CROTCH MAHOGANY—

TOO BEAUTIFUL TO HIDE—

Perfection Flat Finishes will bring out the full beauty of this African Crotch Mahogany (or any other wood grain) without any cloudiness or distortion.

Perfection Flat Finishes — varnish and lacquer types—do not contain any of the conventional stearates or flattening agents and are therefore perfectly clear.

For a lustrous rubbed effect, free from distortion or orange peel, try Perfection Flat Finishes. Write for free samples.

PERFECTION PAINT & COLOR COMPANY

715 E. Maryland St., Indianapolis 2, Indiana

Perfection SYNTHETIC FLAT FINISHES
WATER-PROOF LIQUOR-PROOF

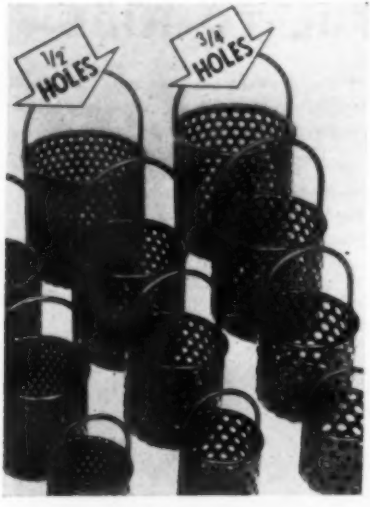
plied with a recirculating system so designed as to provide uniform temperature distribution within the unit, as well as good operating efficiency. Either gas or electricity may be used as a heating medium. Further information is available from American Resinous Chemicals Corp., Peabody, Mass.

Dipping Baskets

A new standard line of insulated baskets for dipping, pickling and general use in submerging parts or products in corrosive solutions is announced by Automotive Rubber Co., 8601 Epworth Blvd., Detroit 4, Mich.

The new baskets, frabricated of heavy gauge, reinforced, perforated steel with welded joints, are completely covered with ⅛-in. thick, shockproof, semi-hard pure rubber.

The Arco process provides for coverage of all faces of the hole with rubber, small perforations being filled solid and drilled out. Thus positive protection for both basket and solution is assured.



For dipping parts in corrosive solutions.

Four sizes of perforations are offered with finished hole sizes of: ¼, ½, ¾ and ¾-inch.

Four sizes of baskets are offered in each hole size: 12-in. diameter by 12-in. depth, 10 x 10-in., 8 x 8-in., and 6 x 6-in. Rigid bails welded to the body are also completely rubber covered. Special sizes and shapes are also made to specifications.

Masking Tape Doesn't Stain White Finishes

Bauer & Black (Division of the Kendall Co.) 2500 S. Dearborn St., Chicago 16, Ill., announces a new industrial adhesive tape which is nonstaining against white baking enamel, and white or pastel air-dry lacquers. No. 158 tape has proven superior as a satisfactory holding or binding adhesive tape, where some tapes cause discoloration, or chemically attack the various industrial finishes. The tape possesses a tensile strength of 46-lbs. per inch of width, and has excellent adhesion. It is available in widths of ¼ to 36-in. and 60 yards in length

New Water-Emulsion Wax is Rust-Inhibiting Coating

A water-emulsion wax that is now being successfully used as a rust-inhibiting coating for metals has been developed by S. C. Johnson & Son, Inc., Racine, Wis. It is being marketed as Johnson's Rust-Inhibiting Wax No. 1568.

Applied by conventional dipping, spraying, wiping or flow-coating, this emulsion forms a dry wax plating on the metal part that checks corrosion. It is non-flammable and non-toxic and

Fine Furniture
MASS PRODUCED

A FAR CRY from the pioneering days of colonial furniture manufacture . . . when each piece was painstakingly and slowly made by hand . . . is this modern P-B Finishing Conveyor in one of the South's leading manufactories of fine furniture.

MAJOR RESULTS obtained: Plant capacity doubled . . . a 75% savings in time and a 40% savings in cost.

WE HAVE a limited supply of reprints of an article which appeared in Factory, Management and Maintenance, describing the remarkable savings made by this conveyor in more detail. Ask for a copy.

PALMER **BEE** COMPANY

DETROIT 12, MICHIGAN

gives high coverage of between 2500 and 3000-sq. ft. per gallon; can be readily removed by degreasing if desired. It is now being used as a corrosion inhibitor on black-oxidized, phosphated and untreated metal surfaces. It is also being used on painted and plated parts as a safeguard against scarring and chipping.

Bright Dip for Copper

Rossaul Copper-Brite, a new safe solution for bright dipping of copper and copper alloys has just been introduced by the Rossaul Co., 119 W. 63rd St., New York 23, N. Y.

Copper-Brite removes oxides, leaves metal bright and shiny, and resistant to future tarnish or discoloration. Metal is left passivated and ready for the next operation.

The traditional platers' bright dip, sulfuric and nitric acid, as users know from unpleasant experience, creates offensive fumes and is highly toxic. The outstanding merit of Copper-Brite is that it is non-toxic, non-fuming and safe for the worker to handle.

Used at room temperature in acid-resistant still tanks, Copper-Brite requires only a dip and clear water rinse. Only five seconds of immersion are required for a bright dip; three minutes for removal of heat scale. It will not discolor silver solder.

Luminous Safety Signs Glow in Darkness

If or when the lights suddenly go out and it's dark in a factory or public building, occupants want to know where the exits are, especially if some danger threatens.

Now, with phosphorescent or so-called "luminous" safety signs available to mark all exits and fire escapes, this hazard can be eliminated.

These glowing signs are visible in total darkness long after the usefulness of ordinary signs has ceased, and they serve as ordinary signs in bright light or daylight.

In addition, markers can be used to point to exits and fire escapes, to fire hose and to other fire fighting equipment, first aid stations, and other vital points in a building or plant.

Signs shown in the accompanying illustration were made and installed by the Nulite Displays Co., 15 East 26th St., New York, N. Y.

Colors Steel Blue-Black

The D. C. Cooper Co., 1467 S. Michigan Ave., Chicago 5, Ill., annouces a new product for producing a beautiful uniform black finish on steel parts. It is a finish that will not peel, rub off, crack or chip, and it is rust resistant. A single bath produces this unique black surface in 5 to 15 minutes.

The dimensions of the parts are not changed by this process. Application is simple, speedy and economical; the finish greatly adds to the life and appearance of steel parts. This product, known as D. C. Oxidizing Compound, is an alkaline salt which is mixed with water and heated.

FOR FAST PRODUCTION... *lower cost!*

REPLACE LACQUER OR VARNISH WITH SYN-POR FORCE DRY CLEAR

FINISH—PACK—SHIP IN ONE DAY

• **SYN-POR Force Dry CLEAR Product Finish is the answer to today's high production demands. It reduces drying time from three days to a mere four hours or less! SYN-POR CLEAR Product Finish is greatly mar-resistant . . . withstands hard usage.**

If you are a manufacturer of tables, pianos, wood kitchen cabinets, desks, or "what have you," requiring a hard, clear finish investigate SYN-POR Force Dry CLEAR!

RESISTANT TO HARD USAGE

- *Unaffected by nail polish, alcohols, household alkalies and acids, fats and greases.*
- *Great color retention properties.*
- *Available in White and any color.*

Write for descriptive information and sample panel.

SYN-POR DURO FINISH

Over 50 years Manufacturers of Enamels and Lacquers

O'NEIL DURO COMPANY

MILWAUKEE 7, WISCONSIN

Random Comment on the Industrial Scene

(Continued from page 8)

with Bakelite phenolic resins. In the initial production stages of this material, Bakelite water-soluble phenolic resin is combined with paper to produce grades of plastic paper specifically designed for plastic-surfaced plywood.

Fusing the paper to the plywood involves no extra operations. It is done at the time the plywood panel is produced, with standard hot-pressing techniques.

* * *

Building Contracts. Construction contracts for May, 1948, in the 37 states east of the Rocky Mountains established the highest peacetime dollar volume ever recorded in a single month.

F. W. Dodge Corporation, the fact-finding organization for the building industry reported that May's total of $970,789,000 was exceeded only once before, and that was June, 1942 when war construction was at its peak.

The near-billion total in May, 1948 was 44% greater than that reported for May of last year, and was 11% higher than the total for April of this year.

All major classifications of construction shared in last month's advance over April and over May of last year, with the most pronounced gains being in nonresidential building.

The cumulative total of $3,831,607,000 for 1948 to date is 33% higher than that reported for the first five months of last year, the Dodge records show.

Nonresidential contracts advanced 56%, residential contracts gained 17%, and heavy engineering awards were up 29% over the corresponding five months of last year.

Luminescence. Do you know that there are luminescent paints, paper, plastics and printing inks that require no radium or radioactive material to make them glow in the dark? In these new materials the luminescent glow is produced by a special pigment which has the ability to absorb light energy.

If the luminescent material glows only during the time that it is exposed to a "black" light, it is called fluorescent. If it continues to glow after the exciting light is removed or extinguished, this luminescent glow is known as phosphorescense which, because it continues after all exciting lights are removed, is also called the afterglow. The latter is often called "luminous," and is the type that glows in the dark after exposure to daylight, lamp-light or black light.

* * *

Howard's Plastic Patch is a new sensational product for repairs to such items as castings, heat ducts, air conditioning systems, water pipes and heating systems. The new Plastic Patch is available in three unit sizes, each depending upon the thickness of the patch required.

Each unit consists of ample Plastic Patching material, Plastic Patch Solvent, Howard New Metal and Howard's New Metal Solvent.

The impregnated Plastic Patch is both waterproof and rustproof, forming a strong durable bond with the parent metal and is excellent for all types of industrial maintenance.

* * *

Lumite plastic screening, the newest development in the screen field, has just been installed on all the windows of the new ultra-modern Sea View Hotel at Miami Beach, Florida.

One of the outstanding features of this new woven plastic material is that it is impervious to salt air and

The RIGHT Finish
CUTS Production Cost
IMPROVES the Product

Over a period of many years we have been called upon to solve all kinds of finishing problems—some really tough ones.

Our files contain many case histories and much valuable and important data on finishes and methods of application.

The answer to your finishing problem may be right here. If not our expert staff of technicians with the finest modern laboratory equipment is ready to serve you.

We invite you to submit your finishing problem to us.

Randolph

PRODUCTS COMPANY

Carlstadt, New Jersey

OPES • LACQUERS • ENAMELS

will not corrode, streak or stain the sides of the building. Besides being stainproof and rustproof, Lumite screening is also abuseproof, due to its high tensile strength. It is said that Lumite is so durable that it "lasts a lifetime."

The color of the screen cannot fade, as the color pigment is blended directly into the basic plastic monofilaments, and the mesh can be easily kept clean by washing. Lumite window screening never needs painting and can be left on the windows all year round, saving on maintenance and replacement costs.

* * *

Fewer Accidents. Industry closed its books on 1947 with a better safety record than the year before, according to the National Safety Council.

The 1947 industrial injury rates, released in advance of the 1948 edition of "Accident Facts," the Council's annual statistical yearbook, show that the over-all accident picture is improving.

The accident frequency rate for all industries submitting company reports to the Council, based on the number of disabling injuries per 1,000,000 man-hours, was 13.26 in 1947, a reduction of 10% from the year before.

The communications industry again had the lowest frequency rate. Lumbering and coal mining had the highest rate.

Underground Corrosion Exhibit

In connection with comparative field tests of the corrosion resistance of various pipe materials in different types of soils, the National Bureau of Standards announces an exhibit of approximately 3000 actual test specimens. Chemists, metallurgists, corrosion engineers, and others interested in the behavior of materials underground are invited to inspect the test samples, which will be on display until August 15, 1948, in the Bureau's Underground Corrosion Laboratory, Connecticut Ave. and Van Ness St., N. W., Washington, D. C.

Gravelometer Tests Coated Panels

THE "Willys-Overland Gravelometer," developed by John G. Piceu in the Engineering & Paint Laboratory of Willy-Overland Motors, Inc., Toledo, Ohio, is used for testing the abrasion resistance, adhesion, flexibility and hardness of many protective coatings.

The machine is designed to run continuously on compressed air. Air pressure may be varied to suit the material under test but usually an air pressure of 20-lbs. is satisfactory. Time required to complete a test ranges from five seconds to 15 minutes. The stone pebbles average ¼-in. in diameter.

A test is run on a 6x12-in. steel panel prepared in accordance with approved production procedure. After

Fig. 1—Gravelometer for testing the effect of gravel on coated metal primers.

The
VARNISH PRODUCTS COMPANY
Makers of . . .
CEL-U-LAK
LACQUERS and ENAMELS
FORM-A-ROC
ALKYD-AMINE ENAMELS
Also . . .
Bronzing vehicles, adhesives and other specialties for the industrial finishing of wood, metal, ceramics and plastics.
5204 HARVARD AVENUE, CLEVELAND, OHIO

FASTER REFINISHING WITH *ELECTRO* COLD STRIPPER

▸ No more long waits while slow-acting paint removers do their work like a team of lumbering oxen. Simply dip the article into Electro Cold Stripper and—Presto!—you can see the old finish literally "pop off" before your eyes. Wash with a pressure stream of water or wipe well with rag and REFINISH IMMEDIATELY. No fuss, no waiting, no bother.

▸ Used cold. Non-inflammable. Non-injurious to hands or metal when used as directed.

▸ Removes paints, enamels, synthetics, lacquers and wrinkles in minutes—not hours. Especially effective on hard-to-remove baked-type finishes. Will not harm even precision finished aluminum, copper, brass, magnesium, zinc, steel, cast iron or their alloys in time required for removal of paint film.

Write for sample and quotations—or order 5 gallons at drum price.

ALLIED FINISHING SPECIALTIES CO.
2641 W. GRAND AVE. CHICAGO 12, ILL.

the panel has been coated and dried it is placed in the machine where only the lower half is exposed to 4-oz. flying gravel. When the test is completed the panel is removed and examined. Comparison can be made with original finish on the unexposed half of the panel.

Tests have been run on wheel enamels, primers and sound deadeners. In Fig. 1 there is shown a picture of the machine and two panels coated with sound deadener. The lower half of each panel was exposed for 15 minutes to flying gravel at 20-lbs. pressure. The panel in the background shows practically no wear, while the deadener coating on the panel in the foreground shows extensive errosion.

The picture marked Fig 2 shows the effect of various finishes over primed and unprimed steel after 19 seconds exposure in the Gravelometer at 20-lbs. pressure. The left half of panel No. 1 was sprayed with red-oxide semi-gloss non-sanding primer and baked 20 minutes at 325° F. A double coat of wheel enamel was then applied over all and baked seven minutes at 325° F.

Panel No. 3 was coated over the left half with red oxide primer and baked 20 minutes at 325° F. Black body lacquer was sprayed over all and air dried.

These tests show that the use of primer is beneficial to the adhesion of both lacquers and wheel enamels. Body enamels have resistance to impingment about equal to primers.

Book on Pre-Treated Brushes

A new 16-page illustrated booklet about Pre-Treated Paint Brushes has just been released by David Linzer & Sons, Inc., 16-20 Astor Place, New York 3, N. Y. Copies of this colorful and informative book are free.

The special features of "Pre-Treated" brushes are, that due to bristles being processed in linseed oil and the brush being broken in, they are ready for use when taken from the wrapper.

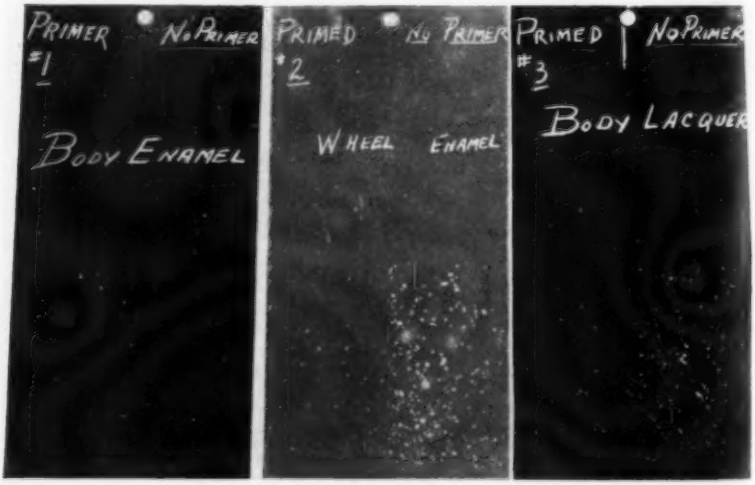


Fig. 2—Here are three differently coated metal panels after tests in the gravelometer.

Mac's FASHION BLEACH

Will Bleach All Kinds of Wood

MAC'S FAMOUS FASHION BLEACH is now available for bleaching all kinds of wood including mahogany, the most difficult wood to bleach. It dries overnight to a desired bleached effect ready for sanding and for the regular finishing schedule. It can be applied by spray using a glass container.

Write for Samples and Descriptive Folder

The Lawrence-McFadden Co.

Headquarters for Fine Finishes Since 1875

7430 STATE ROAD **PHILADELPHIA 36, PA.**

I. C. D. FORMULA NINE

NON-INFLAMMABLE
« *wax free* REMOVER »

for paint, varnish, lacquer, baked enamel, adhesives

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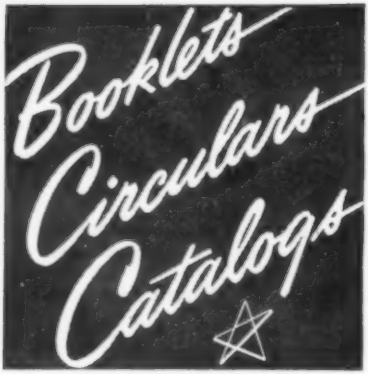

Rust Preventative Compounds

A 16-page booklet on the above subject has been compiled and published by Freedom-Valvoline Oil Co., Freedom, Penna. Copies are free.

Preservative for Wood

A Recommended Commercial Standard for Copper Naphthenate Wood-Preservative (spray, brush or dip application) is being circulated by the Commodity Standards Division of the National Bureau of Standards to manufacturers, distributors, users, and testing laboratories for acceptance.

This standard covers physical and chemical characteristics of copper naphthenate products supplied in either concentrated form, or ready-for-use form; and treatment of wood with preservatives conforming to this specification.

Mimeographed copies, TS-4578, of this Recommended Commercial Standard may be obtained from the Commodity Standards Division, National Bureau of Standards, Washington 25, D.C.

Cleaning and Surface Treatment of Metals Before Painting

An easily-controlled prepaint procedure for cleaning and surface treatment of ferrous metals to provide improved paint adhesion, is fully described in a new Service Report issued by Oakite Products, Inc., 132F Thames St., New York 6, N. Y.

Method discussed is the Oakite CrysCoat Process, in which a specially-formulated acid cleaner is applied to metal surfaces as work is routed through a three or more stage pressure-spray washing machine. CrysCoating, the report states, performs the following three operations at the same time: 1) Removes light soils, grease, spinning compounds and shop dirt from work; 2) improves paint grippage by imparting on surfaces a thin, crystalline phosphate film that actually becomes part of the metal itself; and 3) retards rusting of metal surfaces between cleaning and painting operations, and localizes corrosion if painted finishes become scratched or marred during use.

Binks "Rotojet" Spray Nozzles Illustrated in New Bulletin

Ever since the introduction of mechanical spraying systems for the application of rust-proofing, cleaning and rinsing solutions to metal surfaces, non-clogging Rotojet nozzles have been used for these purposes.

Bulletin 14, just issued by the Binks Mfg. Co., 3114 Carroll Ave., Chicago 12, Ill., contains much useful information regarding Rotojet nozzles and their application to metal cleaning and treating equipment. A copy of this new bulletin will be sent to anyone who requests it.

Rotojet spray nozzles are made from a variety of metals, including cast iron, stainless steel, brass or any other machinable material obtainable in the form of bar stock. There is a Rotojet nozzle available to withstand the action of practically any solution in common use.

This new Bulletin 14 contains diagrams, tables and other mechanical data that will be of great reference value to manufacturers, designers and users of metal treating and cleaning equipment.

New Fire Protection Handbook

The 10th Edition of the NFPA Handbook of Fire Protection (Crosby-Fiske-Forster), like its distinguished predecessors, presents in compact form, for ready reference, the essential information on fire prevention and protection that time has crystallized into good practice. It covers both life safety from fire and the protection of property. The Handbook is the only reference volume of its kind available today. It represents a full two-years' work on the part of the National Fire Protection Association staff with the assistance of more than 100 expert consultants.

The Handbook is useful alike to experienced fire protection engineers, who use it constantly as a reference volume, to architects, to students of fire prevention and protection, to inspectors and to property owners who are anxious to secure the latest fire protection engineering information available. It contains 1500 pages 5¼x7½-in., and is priced at $9.50. Copies can be obtained from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

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Industrial FINISHING Editorial

What to Do About Hot Weather

★ This is the hot stiffling month. It is a month in which your finishing materials may have unusual reactions while being used, or while they are in storage containers. Lacquer and lacquer sealers may give you blush troubles; varnish, primers or enamels may seem to be of thinner consistency —and even your help, as good as they are, may act unusually dopey. This phenomea is the usual sign of summer and the forerunner of a slowdown in productive capabilities of both men and material. The cost to manufacturers, due to stagnant efficiency, is one of those financial losses that is often taken for granted.

Executives are also affected by summer weather stagnation; that they accept the situation, without giving any thought to doing something about it, is quite apparent. Is this a proper outlook for the smart American businessman?

Several years ago, the movie houses, some railroads and overland bus lines, and a few retail stores were forced to do something about summertime stagnation. They had to or face financial losses. They wisely invested in air conditioning which now is recognized as one of the greatest business boosters. The move has paid off in added revenue. Air conditioning has a favorable effect on human reactions. It makes for better working conditions all the year round.

During the cold winter months adequate heat is provided in all commercial establishments for the comfort of employees, which increases their productively and all round efficiency. Cold winter weather is counteracted effectively indoors. Why fall down on the just as important job of counteracting the effects of the intense heat and humidity during the summer season? Employees will be glad to get inside the air-conditioned factory where it's cool and comfortable—and they will work more efficiently and display greater mental alertness.—N. Abramovice.

★ *Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate thought on a live subject. The Editor welcomes guest editorials, paying for those published.*

What Counts in Paint Coatings

★ Industrial protective coatings have become highly specialized, tailor-made products designed to meet the individual requirements of the user. The evolution of these coatings has made it more necessary than ever before for the user to learn something about the composition and utilization of these products.

Many large companies have their own specification forms which must be filled out by their paint supplier. Such information as character and amount of pigments, resins, oils, and solvents, methods of application, amount and type of thinner, drying or baking cycle, etc., are included in these forms.

Having such information available,

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NAZ-DAR ROLLER COATING MACHINE

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With this machine the coating is deposited at great speed, with perfect uniformity and with more economy than is possible by any other method. Almost any rigid or semi-rigid sheet material may be coated such as cardboard, wallboard, metal, wood, glass and heavy paper. A machine of this type will quickly pay for itself in material and time saved.

Paints, varnishes, lacquers, enamels, synthetics or any type of finishing material may be used.

Write for folder giving complete information, data, etc.

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CLEARWASH— compound for water curtain spray booths. Prevents over-sprayed paint, lacquer and enamel from coating back boards and baffle plates. Keeps pipe lines, sprinkler heads and reservoirs free of clogging and corrosion—chemically controls hard water. Economical to use due to extremely low using concentrations. Eliminates down time for tank cleaning and pump disassembly.

ALKALENE— for periodic cleaning of water curtain spray booths. Cleans pipe lines, sprinkler heads in matter of minutes. Easy to apply—gives quick and complete cleaning. Economical to use due to low using concentrations.

SAMPLES AND FURTHER INFORMATION SUPPLIED ON REQUEST.

Chemco Products Company, Inc.

1059 East 76th Street Chicago 19, Illinois

the industrial user can secure not only the most satisfactory performance results but can, in many ways, benefit financially. For example, knowing that the solvents of volatile materials are present only to assist in depositing the paint film, "paint wise" users will be governed in their purchases by the amount of solids in a gallon of the paint rather than by the cost of a gallon.

Knowledge of the best thinner to use may also result in a substantial savings when both the amount required to bring the paint to a certain desired viscosity and the cost per gallon of the thinner are considered.

Constant vigilance in regards to film thickness will insure quality and economical production.

Close cooperation between the paint manufacturer and the industrial user will result in beneficial results for both as well as for the public in general.—L.E.M. (Paint Chemist).

To Operate and Clean Wet Spray Booths

★ Modern wet spray booths are fast replacing the old familiar dry booths in plant after plant. Anyone who has the occasion to visit and recommend methods of maintaining these new water-wash spray booths will soon realize that too little emphasis is placed on the fact that these booths must be kept clean.

Most of the firms realize that they must buy a conditioner to "kill" the paint pigment, but very few executives recognize the fact that *proper spray booth operation depends on how clean the whole system is kept* and that the booths must be thoroughly cleaned at periodic intervals of three weeks to ten weeks, according to conditions at the particular plant, as well as more frequent interim and partial cleaning of the booths.

This periodic and interim cleaning need not be a laborious job, but it must be scheduled and made the responsibility of a capable person. The interim cleaning should consist mainly of skimming the tanks thoroughly every night. The nozzles should be checked to see that they are open; and any that are partially clogged should be cleaned. The back curtain should be checked and any small amounts of residue on the back sheet should be scraped off. *The essential daily chores are skimming the tanks completely, checking the nozzles and back curtain.*

The more infrequent and periodic cleaning should consist of a complete clean-out of the hydraulic system of the booth. Clean the tanks of all paint residues, and then drain them. Remove all deposits from inside the tanks. Fill the tanks with sufficient water to cover the pump intake and add a heavy charge of cleaner. Operate the pump until satisfactory cleanliness is achieved, and then drain the solution.

The cleaner you use should be designed to attack paint residues quickly. *This periodic cleaning will chemically clean the pumps, lines and entire hydraulic system with the minimum of effort and manual labor.*

The maintenance of wet spray booths should be a dual job of conditioning the water during operation, and the interim and periodic cleaning to assure maximum efficiency from wet spray booths.—A. GULINO, Industrial Division of The DuBois Co.

Power Mixer Bulletin

A safety power mixer that is driven by compressed air (no chance for sparks) is illustrated and described in a 4-page bulletin published by the maker, The Union Tool Corp., Warsaw, Ind. Only 50-lbs. air pressure is needed to operate the oscillating "beater" inside the tank. Speed of oscillation can be varied to suit requirements.

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High Solids Lacquers

★ There seems to be a definite trend toward the use and application of high-solids lacquers. Herein may lie some relief from the high cost of production.

It is to the interest of every finish user to obtain from his supplier a correct formulation to fit his particular needs and the product he is finishing. Just recently I learned that a manufacturer of basswood boxes is spraying a 40% solids clear top coat lacquer. The resulting finish of this soft wood is excellent.

Regardless of whether it is wood or metal that is being finished, the use of a correctly formulated high-solids lacquer may eliminate one finishing coat or produce a better finish under usual procedures.—B.C.

Progressive Plants—and Others

There is something like charged energy in the air as you visit a plant that is really alive, alert and efficient. Some of the equipment may not be of the latest, but it is well arranged and it is being used effectively. Aisles are plainly marked and, most important, they are kept clear and clean. There is no accumulation of rubbish under machines and benches, in the tool room or factory office. The entire plant is clean, well lighted and comfortably ventilated. Employees are neat and clean. They move about as if they knew where they were going and really meant to get there.

In such a plant you are almost sure to find sanitary wash rooms equipped with showers and a clean, wholesome cafeteria. Also, it's a safe bet that in this type of plant there are recreational activities for employees, and perhaps a company magazine of some kind. People in the plant take a prominent part in civic affairs. The establishment is something more than just a machine that grinds out financial profits for the owners.

What a contrast between this type of plant and one that has nearly everything in reverse. Now what is really responsible for the difference between these two types of plants? It is not plant area nor is it due to lack of capital.

There are two essential elements of successful efficiency—organization and employee spirit. Both stem from management. Without intelligent leadership, starting with the top man and extending down to the various foremen, there can be no real success.

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Sour: "Bakery department?"
Sweet: "Yes, you have ovens out there don't you?"

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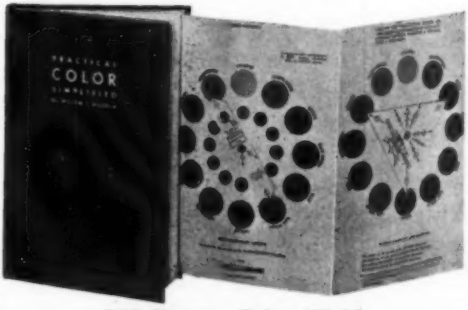

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Faster Drying Baked Enamel

Speed is the order of the day in finishing. Any reduction in finishing time and oven temperatures will speed up production and reduce costs.

It has been found that through the addition of varying amounts of chlorinated rubber in alkyd enamels, the dust-free and tack-free time may be greatly reduced. In some instances, replacing one-fourth of the alkyd with chlorinated rubber has cut the dust-free and tack-free time in half; a 50% replacement, it is said, will render the enamel comparable to lacquer in drying time.

Of course, chlorinated rubber enamels have their limitations in that they must not be baked at too high a heat over too long a time, or they will discolor. A baking time of five minutes at 300° F., or ten minutes at 250° F. is usually satisfactory. Perhaps, through changes in formulation, these limitations may be stretched somewhat.

The important thing is that any *reduction of drying time* may be expressed in lower oven temperatures, shorter oven travel where new ovens are to be installed, or an increase of conveyor speed through present ovens. Thus finishing time as well as fuel cost is reduced.

Test panels in both wood and metal have been weathered over 5½ years. Results of these tests are available to those interested. Several users of synthetic enamels are asking their suppliers about the possibilities of adding chlorinated rubber to the enamels they use for finishing.

Portable Sanders Bulletin

A new 8-page folder illustrating small portable sanders, both electric and air driven, along with all accessories used with these machines, can be obtained from Sterling Tool Products Co., 1340 N. Milwaukee Ave., Chicago 22, Ill., or from any of its branches or representatives.

Glidden's New Technical Service Helps Users of Finishes

The Glidden Co., Cleveland, Ohio, is offering a new technical service to its present and potential customers for industrial organic finishes. This new service relieves its customers of many of the details involved in production finishing.

All industrial finishing problems are handled by a Technical Service Department. The reason for concentrating service functions lies in the complicated nature of the mechanical and chemical principles involved, not only in organic finishes, but also in finishing processes which vitally affect the quality of the dried film, such as surface pretreatments, special methods of handling the coating, as in pre-heating, and application and drying procedures.

Glidden Technical Service first delves into facts—finds out what precise requirements are desired in the finish, what facilities are available or required to produce it, the kind of coating needed, and the coordination of procedures necessary to insure the desired results.

Such surveys and consultative services are equally effective whether a complete new plant layout, a re-modernization program, or the best utilization of present facilities are under consideration. Planning for the finish must go hand in hand with plans for processing methods in order to make sure that each will function correctly with the other.

With all available facts at his disposal, the Technical Service Director supervises the formulation, process, directs the pretesting of the selected coating under conditions duplicating those under which it will be used in production and, if requested, he also directs the production run in the customer's plant. In addition, he prepares specifications of the coating and for its correct usage to blueprint subsequent production procedures.

Ted Schuster and Fred Shoeman Join Processed Chemical & Coatings

Mr. Ted Schuster and Mr. Fred Shoeman have joined the sales staff of Processed Chemical & Coatings Corp. of Brooklyn, N. Y.

Mr. Schuster will be sales representative in Pennsylvania, Maryland, District of Columbia and Virginia. He previously served this territory in the capacity of technical adviser on production finishes. He has a background of technical and sales experience totaling 15 years.

Mr. Shoeman will be sales representative in New York and New England. He will add to the staff of P.C.&C.C. his experience as sales and technical consultant for the protective coatings industry.

★ **Question:**

Is it necessary to risk fire when removing a finish?

★ **Answer:**

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SAF-TE is made to order for removing jobs where fire prevention is all-important—*it simply will not burn!* Reduces any finish to a soft sludge that peels off easily. And since it leaves no waxy residue, no wash-up is needed.

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Rusted Metal, Acid, Steam

One of the most severe problems encountered in the protection of metal is in a lumber drykiln. Here steam, acid and moisture combine to attack metal. Conditions of almost equal severity are encountered in various chemical plants, canneries, textile dye houses, paper mills, etc. The problem of protecting metal under such conditions has been successfully overcome through the use of a special coating, called "Tremflex", which has the unique quality of being able to penetrate down through the rust and take firm hold on surfaces even though they are moist. This type of finish has unusual resistance to acid and alkali. The application is inexpensive and rapid. Necessary preparation of the surface is kept at a minimum. Although the coating itself is black, aluminum powder may be incorporated into the mixture, where desired, to provide an attractive aluminum finish. —*Tremco Maintenance Experience.*

Refinishing Red Mahogany In Blond Color

SOME TIME AGO one of the readers asked about bleaching a red mahogany finish on a piano, and then refinishing the piano in a modern blond color. I have done this successfully by the following method:

First, remove all of the old finish by using a good paint and varnish remover. There are a number of good removers of this type available from the various manufacturers of finishing materials. After all of the old finish is removed, wash the surface to be refinished with clean lacquer thinner and then with clean alcohol. This washing will remove any paraffin or other residue that may have been left on the surface from the varnish remover. Of course, all var-

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nish removers do not contain paraffin; if the remover used does not contain paraffin, then the washing with lacquer thinner and alcohol may be omitted.

Sand the entire surface of the piece to be refinished. First use No. 3/0 sandpaper; then No. 5/0 finishing sandpaper. A small portable belt sander might be used for this operation if you are extremely careful about how you use it. Be careful and avoid sanding through the veneers.

After sanding, blow (with an air gun) and wipe the sanded surfaces free from all sand dust. Then apply three treatments with a bleaching solution—allowing four to six hours between each application, depending upon the temperature and humidity of the drying room. A cold room and high humidity will retard the drying of a wet bleaching, therefore more drying time will have to be allowed between each application of the bleaching material.

For bleaching, I use a mixture of three parts of No. 2 and one part of No. 1 bleach. Allow the last application of bleaching solution to dry 24 hours. Then sand the surface carefully and thoroughly with No. 6/0 garnet finishing paper. Blow off all sand dust and wipe the surface clean. This is very important, as any sand dust that is left on the surface may contain some of the bleaching residue

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National Plastics Exposition in New York, Sept. 27

The Third National Plastic Exposition will take place in Grand Central Palace, New York City, Sept. 27 to Oct. 1, and will be exclusively a trade and industrial show.

Admission will be by invitation and registration only. The general public will not be invited. Emphasis will be placed on the trade and industrial side, calling attention to the remarkable strides made by the plastics industry in a number of hitherto unexplored fields, with new products, processes, and new and improved machinery.

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and thus cause the finish to deteriorate prematurely.

Then follow with a wet spray coat of a light-lemon-yellow non-grain-raising stain. Allow this stain to dry one hour. Then apply a wet coat of a solution made up in the proportion of 1-oz. of light ivory lacquer enamel, 3-oz. of 21% solids lacquer sealer and 13-oz. of lacquer thinner. Let this "equalizer" dry for one hour; then sand carefully using No. 7/0 garnet sandpaper. Blow off all sand dust with an air duster. Fill the wood surfaces, using a rich nut-brown filler. Allow the filler to dry 12 to 24 hours, depending upon the type of filler, the heat and the humidity. Now follow with a wet coat of clear lacquer sealer which should dry one hour. Sand with No. 7/0 sandpaper. Blow off the dust and wipe the surface clean.

Follow with a little touching up and blending in, or uniforming of any light spots, etc. This can be done with a light reddish brown lacquer shading stain.

Spray on one or two coats of a good quality low-viscosity clear lacquer. Allow the lacquer to dry three hours between coats and allow the final coat to dry 24 to 48 hours. Then rub to a smooth satin finish, using paraffin oil and 3F pumice.

Follow the rubbing with a good cleaning polish. The operations and materials used, as I have just recommended, will produce a beautiful golden wheat color finish.—H. W. CHESTER.

Paints for Plastics

By William Beacham
Crystal Laboratories, Inc.

THE majority of paints or coatings for plastics are not easy to apply. The coatings with proper fast solvents can be sprayed without a great deal of trouble, provided the article

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The Miskella Standardized Insulated line now includes: Vibra-Veyor, Duplex-Veyor, Burn-in-Kit, Bench-Kit, Test-Kit, Barrel-Kit, "Tub" Oven, Pull-Thru Oven, Elliptical Oven, Rack-Tub, Hy-Heat Units, Super-Heat Units, Low-Heat Units, Porta-Veyor, Chain-Veyor, Belt-Veyor, Coil-Veyor, Heat-O-Lier and Attic Oven.

to be coated has no pockets or deep draws to trap solvents or build up a "dust coat" (of dry atomized paint) which does not adhere to the surface; as an example, the ladies shoe heel mold 2-in. in diameter and 1½ to 4-in. deep, and open at the bottom. The finely atomized particles of paint, with a fast solvent, will adhere to the walls of this mold, and the compressed air will dry the surface of particles.

The atomized material following, adheres only to the previously dried particles, building up a heavy dust coat.

If the solvent is slow there is not sufficient air movement to carry off the fumes, and the material will sag. The speed and type of solvent must be formulated to suit your shop requirements, and after being especially formulated for you, a change in room temperature may change the results.

One new plastic coating designed to change the surface of cheap plastic objects, to give the same resistance as expensive plastics, must be applied in such a manner as to deposit a fine mist coat, hardly noticeable to the naked eye, which wets itself out after a few seconds and bites into the cheap plastic base.

The main drawback to plastic coatings is the lack of extenders to produce an even non-sagging film.*

The liquid being sprayed will cling to the particles of extenders and prevent runs and sags. Without the ex-

FOR ALL FINE FINISHES
TAC-ALL TACK RAGS
Packed bulk or individually.
Prices and samples on request.
GEO. W. RENNER CO.
2309 Lillie St., Ft. Wayne 5, Ind.

C. RAYMOND SYER
Consulting Finishing Industrial Engineer
P. O. Box 425 Westport, Conn.

Flock Process Co., Inc. Moves to Larger Quarters

The Flock Process Co., Inc., and its affiliated companies, Coated Fabrics Corp. and Velvetone Fibers Corp., moved to their new larger quarters at 365 Main St., Norwalk, Conn., July 1.

In the new quarters, which contains 85,000-sq. ft. of factory space with its own railroad siding, the firm has installed the latest type of equipment for all methods of flock coating on cloth, paper, plastics, metals and wood, and all types of metal finishing. Production of allover flock coverage on cloth and paper will be increased to a daily capacity of 40,000 yards, in widths up to 65-in.

Redhead Appointed Gen. Sales Mgr. of Black Mfg. Co.

Charles R. Redhead, for three years manager of the company's Cleveland office, has been appointed General Sales Manager of The Black Mfg. Co., Baltimore, Md., manufacturer of Black Arrow paint spray apparatus.

Prior to entering the service, Mr. Redhead was associated, in a sales capacity, with two or three other nationally known manufacturers.

C. R. Redhead is now General Sales Manager for Black Mfg. Co.

BLANCHIT
(Trade-Mark Reg.)
U. S. and Foreign Patents
WOOD BLEACH
Accepted Standard
For Furniture and Cabinet Makers
Also Interior Woodwork Recoloring
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Patent Licensee
CHICAGO 54

tenders the liquid may run together in a manner similar to the rain drops on a window, until sufficient liquid has collected or bunched itself together to run. Also, air trapped in or under the wet film will cause an uneven coat (blisters and pits); the air particle rising to the top of the liquid will act in the same manner as an extender drawing the liquid toward it.

Added comment by John F. Daymude: "I disagree with the paragraph, although that condition could be in existence in some paint companies, and it should probably be left in, since the following paragraph refers to this paragraph.

Final comment by Author: When Mr. John F. Daymude of Cincinnati, Ohio, is in Chicago, I wish he would drop in to see me. I would like to show him panels of different types of plastic coatings to prove my point.

One panel in particular showing this condition, was prepared by chemists of a well known oil company. The chemists, all having Doctor's Degrees, all of them ex-professors, claimed to thoroughly understand plastics.

Upon questioning these men who had brought their problem in to see if I could help them, I found they did not have any production experi-

NATIONAL
Lacquer and Paint Co., Inc.
SERVING INDUSTRIAL AMERICA
MFRS. OF
WRINKLE AND GLOSS FINISH ENAMELS - LACQUERS
WRITE FOR INFORMATION — SAMPLES — QUOTATIONS
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ence. They understood plastics all right, but applying those plastics is an entirely different story, and by passing the difficulties of application to the man behind the gun and showing him the reason for those difficulties, we are accomplishing something definitely beneficial to the entire industry.

There never was a time when there was as much opportunity for technical developments. Scientists discover things but it is up to industry to find the way to make these things of practical use.

It is far better to work with your competitor than to fight all of the time—until neither can work.

Chas. H. Hampton Now With Protective Treatments, Inc.

Chas. H. Hampton, formerly well known as industrial sales manager for a finish manufacturing firm in Dayton, Ohio, and later retired for three years after a severe heart attack, is again active as general sales manager of Protective Treatments, Inc., 419 Montgomery St., Dayton 10, Ohio.

Protective Treatments, Inc. manufactures and sells "Plastrip" a strip-off masking coating for dry spray booths.

Classified Advertising

Rate: $1.00 per line per insertion—minimum $5.00

SALES POSITION WANTED.

Man 40 years of age, experienced in wood and metal finishes, desires Indiana territory. Can do own service work. Has some following. Address IF-552, care Industrial Finishing.

SALESMAN

Forty-two years old, college education, with 17 years' traveling, selling, production and maintenance finisher, is seeking position as Sales Executive in the south, southwest or far west. Address IF-553, care Industrial Finishing.

SALESMEN WANTED.

Prominent eastern manufacturer of complete line industrial finishes, excluding lacquers, wants a salesman who knows the industrial finishing field, to cover eastern territory. Drawing account and liberal commission for the man whose background and experience qualifies him for the job. All of our personnel know about this advertisement. When you write, give full particulars and send references. All replies will be held in strict confidence. Address IF-554, care Industrial Finishing.

PAINT CONSULTANT.

A new service offered. Paint troubles and production bottlenecks cleared. Mail service and on-the-spot service. MICHAEL FORCHIONE, 1703 Hanover Ave., Allentown, Penna.

CHEMIST - EXECUTIVE.

Small, successful industrial wood and metal coating manufacturer has an executive position open for graduate chemist 30-45 years old with laboratory and sales experience. Salary $7,200 per year plus bonus. In replying, give complete education and business background. Replies handled with utmost confidence. Address direct to ROBERTSON CO., INC., 1315 W. Kentucky St., Louisville 10, Ky.

FINISHING FOREMAN WANTED.

A large manufacturer of fine furniture on a production basis requires the services of a General Foreman to take full charge of all finishing and rubbing operations. Prefer man with a thorough knowledge of all finishing materials, equipment and extensive conveyor system.

This is not an ordinary job, but requires a man that can handle efficiently and effectually a large number of men as well as to maintain a quality job with a minimum amount of repairs and refinishing.

Give full details as to qualifications, age, reference, and other details that will be of assistance to us. If application and reference indicate that a personal interview is desirable, we will arrange for a visit to our plant. Address IF-547, care Industrial Finishing.

SALESMEN WANTED.

A manufacturer of a paint specialty item desires salesmen in the Detroit and Chicago Areas. The men desired should have broad experience in the finishing industry. Address IF-550, care Industrial Finishing.

SALESMEN WANTED.

With industrial following, to invest in small established company in Metropolitan Area. Address IF-551, care Industrial Finishing.

LACQUER SALESMEN WANTED.

A Newark manufacturer of an exceptionaly fine line of lacquers and synthetics, including some exclusive features which offer great sales possibilities, seeks experienced salesmen, with established following in the industrial field. Territories open include metropolitan New York and New England states. Attractive commission basis. All replies confidential. Our organization knows about this ad. Address IF-537, care Industrial Finishing.

SALESMAN WANTED.

Industrial salesman covering Tri-State Pittsburgh Market featuring infra-red equipment, conveyors, metal cleaning and washing machines. Painting background would be an asset. Please state educational and business details for prompt consideration. Address IF-545, care of Industrial Finishing.

SALESMAN WANTED.

Industrial finishes salesman with a following and contacts for activity within Chicago or 100-mile radius by established manufacturer of lacquers and synthetic enamels. Desire type capable of growing into district sales manager. Highest commissions, also drawing account. Mail or bring in outline of your experience. CAPITOL CHEMICAL CO., 2320 N. Seeley Ave., Chicago 47, Ill.

WANTED.

Industrial Product finish salesman, with following, to take over established territory—Michigan, Ohio or Western Pennsylvania. Drawing account and commission. Write MARIETTA PAINT & COLOR CO., Marietta, Ohio, giving age, experience, qualifications and references.

CAN YOU SUPPLY THESE PAINTS?

Responsible Wisconsin Broker Distributor of Paints for Industry seeks reliable, qualified sources for two types of Black Core Paint for Automotive, Truck and Tractor Radiators, Asphaltum vehicle, pigmented, and short oil varnish vehicle, pigmented. Paint manufacturers who are equipped and want to produce such finishes will obtain fairly substantial volume. Write IF-544, care Industrial Finishing, Indianapolis 4, Ind.

SALESMEN WANTED.

Manufacturer of fine finishes with features that no other products have and offering tremendous sales possibilities seeks experienced salesmen with established following in the industrial field. Territories open in metropolitan New York, New Jersey and New England. Attractive commission and drawing against commission. All replies confidential. Our organization knows about this ad. Address IF-546, care Industrial Finishing.

SALESMAN WANTED.

North Carolina Woodfinishing Materials manufacturer wants salesman to call upon furniture manufacturers in Western North Carolina, South Carolina, Tennessee, Virginia, Georgia and so forth. Experience required. Excellent earning possibilities, with growing concern, well known in field. All replies confidential. Address IF-549, care Industrial Finishing.

INDUSTRIAL SALESMEN WANTED.

Both Chicago and vicinity, and the state of Indiana are open for reliable industrial salesmen with established business. Our commission rate is 15%. Address IF-548, care Industrial Finishing.

INDUSTRIAL COATINGS SALESMEN WANTED.

Nationally known manufacturer is greatly expanding industrial sales activities, and offers attractive opportunities to salesmen having a thorough knowledge of industrial finishes and modern finishing methods.

Our industrial finishes are recognized for their high quality, and our line is complete. It comprises Primers, Lacquers, Synthetic Enamels, Electrostatic Finishes, Wrinkle and other decorative finishes.

We prefer men who now have active contacts. Territories are open in the state of Ohio; state of Indiana; Western New York; Western Michigan.

Write Industrial Department, BERRY BROTHERS, 211 Leib St., Detroit 7, Mich.

CLOSEOUT BARGAINS

100—5 gal. light ivory baking enamel, $2.00 gal.
10—54 gal. drums black fine wrinkle, $1.75 gal.
200—5 gal. Coca Cola red bake or air dry, $3.10 gal.
70—30 gal. drums aluminum lacquer, $1.00 gal.
20—54 gal. drums lacquer thinner, $.70 gal.

Over 30,000 gallons industrial finishes to be liquidated. Manufactured by nationally known concerns. Write us your requirements. Samples upon request. Prices quoted F.O.B. Chicago. SUPERIOR PAINTS, 2256 Elston Ave., Chicago 14, Ill.